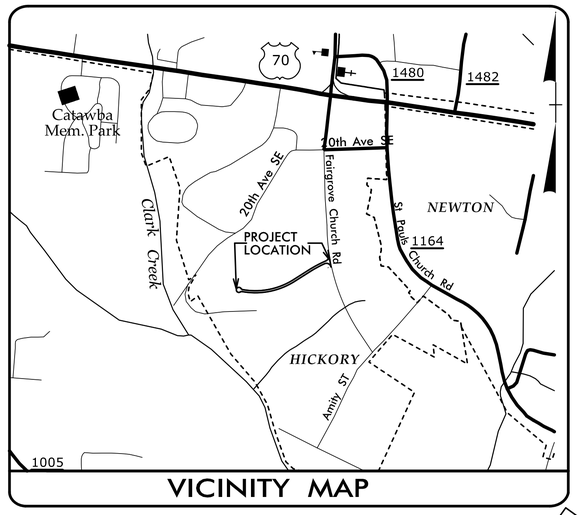
09/08/99

TIP PROJECT: HA–0007

CONTRACT: DL–00321

See Sheet 1A For Index of Sheets
See Sheet 1B For Conventional Plan Sheet Symbols



VICINITY MAP

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CATAWBA COUNTY

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HA–0007	1	

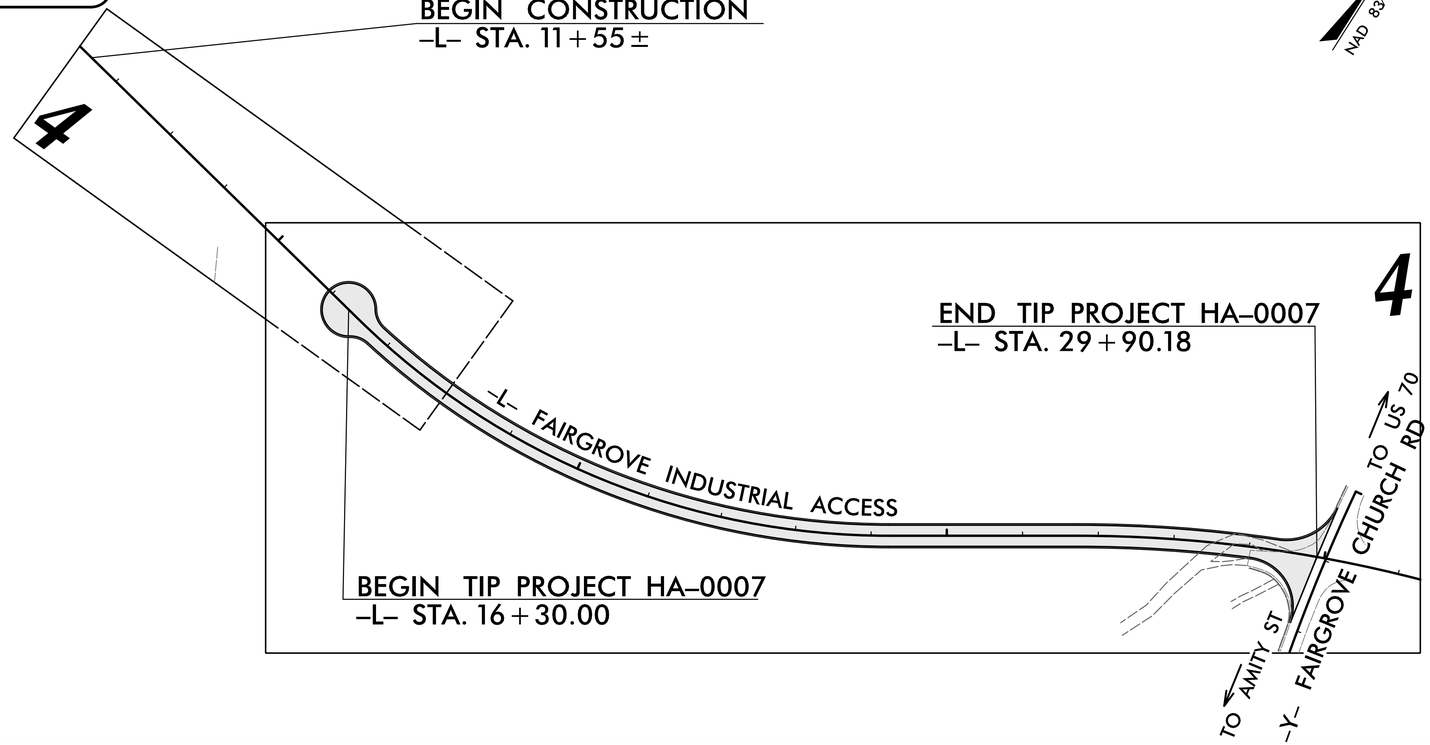
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50850.1.1	5085114	PE
50850.2.1	5085114	R/W
50850.2.2	5085114	UTIL.
50850.3.1	5085114	CONST

LOCATION: ARC FAIRGROVE INDUSTRIAL ACCESS

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND CURB & GUTTER

NAD 83/2011

BEGIN CONSTRUCTION
–L– STA. 11+55±



DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

DESIGN DATA

ADT 2023 = N/A
ADT 2045 = N/A

V = 40 MPH

FUNC CLASS =
LOCAL
REGIONAL TIER

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT HA–0007 = 0.258 MILES
TOTAL LENGTH TIP PROJECT HA–0007 = 0.258 MILES

NCDOT CONTACT: COLE GURLEY, PE

PLANS PREPARED BY:

TGS ENGINEERS
201 W. MARION ST
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PLANS PREPARED FOR:

NORTH CAROLINA DEPARTMENT OF TRANSPORATION
DIVISION 12
1710 E. Marion St
Shelby, NC 28150

RIGHT OF WAY DATE:
OCTOBER 1, 2023

LETTING DATE:
MARCH 26, 2024

2024 STANDARD SPECIFICATIONS

JIMMY L. TERRY, PE
PROJECT ENGINEER

SANDRA MELVIN
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER

12/8/2023

DocuSigned by:
John W. Twisdale, Jr.
SIGNATURE: P.E.

NORTH CAROLINA PROFESSIONAL SEAL 024897 ENGINEER John W. Twisdale Jr.

ROADWAY DESIGN ENGINEER

12/8/2023

DocuSigned by:
Jimmy Terry
SIGNATURE: P.E.

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

STATE OF NORTH CAROLINA • DEPARTMENT OF TRANSPORTATION •

12/6/2023
X:\Municipalities\Hickory\ARC Fairgrove Industrial Access\Roadway\Proj\Fairgrove_Rdy_tsh.dgn
User:smelvin

8/17/99

TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	1A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 035018 JIMMY L. TERRY
12/8/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES

GENERAL NOTES: 2024 SPECIFICATIONS
EFFECTIVE: 01-16-2024
REVISED:

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SIDE ROADS:

THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:

SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

STREET TURNOUT:

STREET RETURNS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 848.04 USING THE RADII NOTED ON PLANS.

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE CITY OF HICKORY, DUKE, AT&T, AND METRONET.

ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY OTHERS.

STANDARD DRAWINGS

EFF. 01-16-2024
REV.

2024 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Contracts Standards and Development Unit - N. C. Department of Transportation - Raleigh, N. C., Dated January 16, 2024 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
DIVISION 2 - EARTHWORK	
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
225.06	Method of Grading Sight Distance at Intersections
DIVISION 3 - PIPE CULVERTS	
300.01	Method of Pipe Installation
310.10	Driveway Pipe Construction
DIVISION 6 - ASPHALT BASES AND PAVEMENTS	
654.01	Pavement Repairs
DIVISION 8 - INCIDENTALS	
815.02	Subsurface Drain
838.01	Concrete Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
838.11	Brick Endwall for Single and Double Pipe Culverts - 15" thru 48" Pipe 90 Skew
840.00	Concrete Base Pad for Drainage Structures
840.01	Brick Catch Basin - 12" thru 54" Pipe
840.02	Concrete Catch Basin - 12" thru 54" Pipe
840.03	Frame, Grates and Hood - for Use on Standard Catch Basin
840.31	Concrete Junction Box - 12" thru 66" Pipe
840.32	Brick Junction Box - 12" thru 66" Pipe
840.51	Brick Manhole - 12" thru 36" Pipe
840.52	Precast Manhole - 4', 5' and 6' Diameter 12" thru 48" Pipe
840.53	Precast Manhole with Masonry Base - 12" thru 42" Pipe
840.54	Manhole Frame and Cover
840.66	Drainage Structure Steps
848.04	Street Turnout
876.01	Rip Rap in Channels and Ditches
876.02	Guide for Rip Rap at Pipe Outlets

12/6/2023
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User:jmalkin

9/10/2021

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	1B

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

Note: Not to Scale

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin (EIP)
- Computed Property Corner
- Existing Concrete Monument (ECM)
- Parcel/Sequence Number
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary
- Proposed Wetland Boundary
- Existing Endangered Animal Boundary
- Existing Endangered Plant Boundary
- Existing Historic Property Boundary
- Known Contamination Area: Soil
- Potential Contamination Area: Soil
- Known Contamination Area: Water
- Potential Contamination Area: Water
- Contaminated Site: Known or Potential

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream
- Buffer Zone 1
- Buffer Zone 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY & PROJECT CONTROL:

- Primary Horiz Control Point
- Primary Horiz and Vert Control Point
- Secondary Horiz and Vert Control Point
- Vertical Benchmark
- Existing Right of Way Monument
- Proposed Right of Way Monument (Rebar and Cap)
- Proposed Right of Way Monument (Concrete)
- Existing Permanent Easement Monument
- Proposed Permanent Easement Monument (Rebar and Cap)
- Existing C/A Monument
- Proposed C/A Monument (Rebar and Cap)
- Proposed C/A Monument (Concrete)
- Existing Right of Way Line
- Proposed Right of Way Line
- Existing Control of Access Line
- Proposed Control of Access Line
- Proposed ROW and CA Line
- Existing Easement Line
- Proposed Temporary Construction Easement
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage/Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vlneyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole
- Storm Sewer — S

UTILITIES:

** SUE – Subsurface Utility Engineering*
LOS – Level of Service – A,B,C or D (Accuracy)

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H–Frame Pole
- U/G Power Line Test Hole (SUE – LOS A)*
- U/G Power Line (SUE – LOS B)* — P
- U/G Power Line (SUE – LOS C)* — P
- U/G Power Line (SUE – LOS D)* — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole
- Telephone Pedestal
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole
- U/G Telephone Test Hole (SUE – LOS A)*
- U/G Telephone Cable (SUE – LOS B)* — T
- U/G Telephone Cable (SUE – LOS C)* — T
- U/G Telephone Cable (SUE – LOS D)* — T
- U/G Telephone Conduit (SUE – LOS B)* — TC
- U/G Telephone Conduit (SUE – LOS C)* — TC
- U/G Telephone Conduit (SUE – LOS D)* — TC
- U/G Fiber Optics Cable (SUE – LOS B)* — T FO
- U/G Fiber Optics Cable (SUE – LOS C)* — T FO
- U/G Fiber Optics Cable (SUE – LOS D)* — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- U/G Water Line Test Hole (SUE – LOS A)*
- U/G Water Line (SUE – LOS B)* — W
- U/G Water Line (SUE – LOS C)* — W
- U/G Water Line (SUE – LOS D)* — W
- Above Ground Water Line — A/G Water

TV:

- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- U/G TV Test Hole (SUE – LOS A)*
- U/G TV Cable (SUE – LOS B)* — TV
- U/G TV Cable (SUE – LOS C)* — TV
- U/G TV Cable (SUE – LOS D)* — TV
- U/G Fiber Optic Cable (SUE – LOS B)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS C)* — TV FO
- U/G Fiber Optic Cable (SUE – LOS D)* — TV FO

GAS:

- Gas Valve
- Gas Meter
- U/G Gas Line Test Hole (SUE – LOS A)*
- U/G Gas Line (SUE – LOS B)* — G
- U/G Gas Line (SUE – LOS C)* — G
- U/G Gas Line (SUE – LOS D)* — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- SS Force Main Line Test Hole (SUE – LOS A)*
- SS Force Main Line (SUE – LOS B)* — FSS
- SS Force Main Line (SUE – LOS C)* — FSS
- SS Force Main Line (SUE – LOS D)* — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line (SUE – LOS B)* — 2UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

6/2/99

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	2A-1

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY

12/8/2023

PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 042542 ROBERT E. KRAL

12/8/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

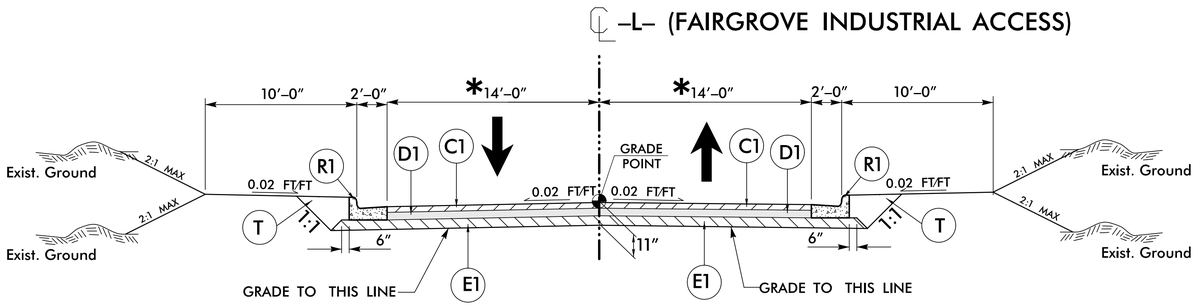
FINAL PAVEMENT SCHEDULE

C1	PROP. APPROX. 3" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C, AT AN AVERAGE RATE OF 168 LBS. PER SQ. YD. IN EACH OF TWO LAYERS.
D1	PROP. APPROX. 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
E1	PROP. APPROX. 4" ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
K2	CL IV SUBGRADE STABILIZATION
N1	GEOTEXTILE FOR SUBGRADE STABILIZATION
R1	2'-6" CONCRETE CURB & GUTTER
T	EARTH MATERIAL.

PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE.

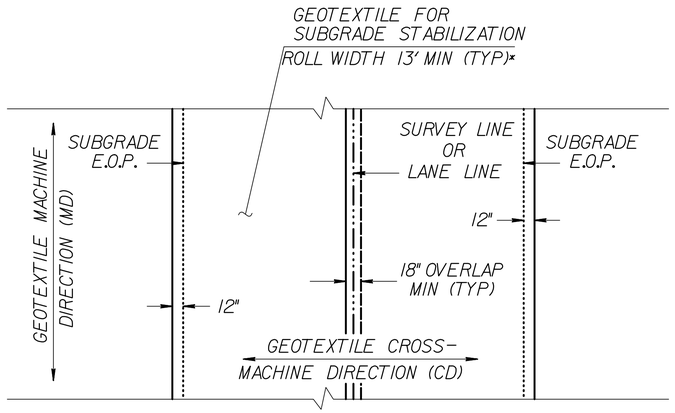
*
PAVEMENT WIDTH(CUL-DE-SAC)

14'-0" TO 35'-0"
-L- STA. 15+95.00 TO 16+78.97, RT
-L- STA. 15+95.00 TO 16+81.09, LT



TYPICAL SECTION NO. 1

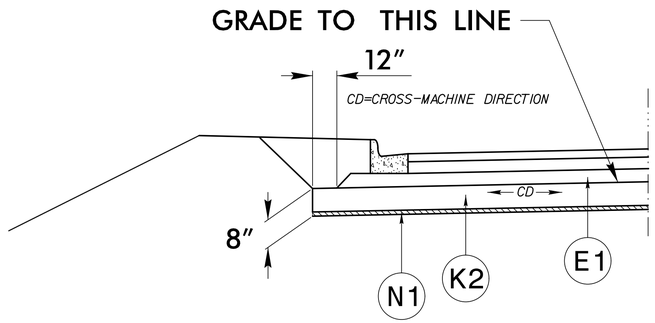
USE TYPICAL SECTION NO. 1
-L- STA. 16+30.00 TO -L- STA. 29+90.18



GEOTEXTILE FOR SUBGRADE STABILIZATION PLACEMENT (PLAN VIEW)

(100% COVERAGE REQUIRED)

*INSTALL GEOTEXTILE FOR SUBGRADE STABILIZATION WITH MINIMUM ROLL WIDTH UNDER ROADWAY EDGES AND SHOULDERS ADJACENT TO FILL SLOPES



AGGREGATE SUBGRADE FOR CG WITH ASHALT BASE

-L- STA. 16+00.00 TO -L- STA. 29+90.00

COMPUTED BY: SGM DATE: 10/4/2023
CHECKED BY: JLT DATE: 12/6/2023

PROJECT NO.	SHEET NO.
HA-0007	3B-1

STATE OF NORTH CAROLINA

SUMMARY OF EARTHWORK

IN CUBIC YARDS

Station	Station	Uncl. Excav.	Undercut	Embank. +%	Borrow	Waste
L- 15+93.00	-L- 29+90.18	5,415		4,654		761
Grade Point Undercut			50	58	58	50
TOTAL:		5,415	50	4,712	58	811
LOSS DUE TO CLEARING & GRUBBING		-100				-100
Additional Undercut (Contingency)			400	460	460	400
WASTE IN LIEU OF BORROW					-518	-518
PROJECT TOTALS:		5,315	450	5,172	0	593
EST. 5% TO REPLACE TOP SOIL ON BORROW PIT					0	
GRAND TOTALS:		5,315	450		0	593
SAY		**5,500**	**450**			

Note: Approximate quantities only. Unclassified Excavation, Fine Grading, Clearing and Grubbing, and Removal of Existing Asphalt Pavement will be paid for at the contract lump sum price for grading.

Note: Earthwork quantities are calculated by TGS Engineers. These earthwork quantities are based in part on subsurface data provided by the Geotechnical Engineering Unit.

EST. DDE =1,340 CUBIC YARDS

EST.SHALLOW UNDERCUT BY STATIONS: -L- 16+00 TO 18+25 = 75 CY; '-L- 21+21 TO 29+90 = 825 CY
TOTAL SHALLOW UNDERCUT = 900 CY

SELECT GRANULAR MATERIAL = 450 CUBIC YARDS

UNCLASSIFIED EXCAVATION - ACCEPTABLE, BUT NOT TO BE USED IN THE TOP 3 FT OF EMBANKMENT OR BACKFILL = 400 CUBIC YARDS (-L- STA 16+00 to 16+75, -L- STA 21+75 to 23+25)

PAVEMENT REMOVAL SUMMARY

IN SQUARE YARDS

SURVEY LINE	Station	Station	LOCATION LT/RT/CL	ASPHALT REMOVAL	ASPHALT BREAKUP	CONCRETE REMOVAL	CONCRETE BREAKUP
-L-	29+01	29+90	CL	446.94			
			TOTAL:	446.94			
			SAY:	**450**			

TGSLTW1019

COMPUTED BY:	REL	DATE:	10/4/2023
CHECKED BY:	JWT	DATE:	10/4/2023

PROJECT NO.	SHEET NO.
HA-0007	3D-1

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

**Note: Invert Elevations indicated are for Bid Purposes only and shall not be used for project construction stakeout.
See "Standard Specifications For Roads and Structures, Section 300-5".**

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48 INCHES & UNDER)

LINE & STATION (SIZE / THICKNESS OR GAUGE)	OFFSET	STRUCTURE NUMBER FROM	STRUCTURE NUMBER TO	TOP ELEVATION FT.	INVERT ELEVATION FT.	INVERT ELEVATION FT.	MINIMUM REQUIRED SLOPE %	Drainage Pipe (RCP, CSP, CAAP, HDPE, or PVC) 12	15	18	24	30	36	42	DO NOT USE RCP	DO NOT USE CSP	DO NOT USE CAAP	DO NOT USE HDPE	DO NOT USE PVC	C. S. PIPE 12 .064	15 .064	18 .064	24 .064
L 29+06	16 RT	0400		950.6																			
		0400	0401		947.6	946.8																	
L 29+06	26 RT	0401		949.8																			
L 27+50	16 RT	0402		948.9																			
		0402	0403		945.9	937.9																	
L 25+22	16 RT	0403		940.9																			
		0403	0404		937.9	927.9																	
L 23+67	16 RT	0404		930.9																			
		0404	0405		927.9	920.2	0.4																
L 22+50	16 RT	0405		923.2																			
		0405	0406		920.2	915.4	0.5																
L 21+76	16 RT	0406		918.4																			
		0406	0407		914.6	914.4																	
L 21+76	16 LT	0407		918.4																			
		0407	0408		914.4	914.2					24												
L 16+80	16 RT	0409		886.0																			
		0409	0410		883.0	882.8																	
L 16+80	16 LT	0410		886.0																			
		0410	0411		882.8	882.4			28														
L 15+93	0 CL	0412		882.2																			
		0412	0413		879.2	879.0			20														
L 13+50	40 RT	0414			873.0	872.5	0.8																
							SHEET TOTALS		48		24												
							PROJECT TOTALS		48		24												

FROM	TO	R. C. PIPE CLASS III 12	15	18	24	30	36	R. C. PIPE CLASS IV 12	15	18	24	30	36	42	R. C. PIPE CLASS V 12	15	18	24	30	36	42	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE
0400																								
0400	0401		12																					
0401																								
0402																								
0402	0403								228															
0403																								
0403	0404								156															
0404																								
0404	0405								120															
0405																								
0405	0406								76															
0406																								
0406	0407										28													
0407																								
0407	0408																							
0409																								
0409	0410								32															
0410																								
0410	0411																							
0412																								
0412	0413																							
0414																					68				
SHEET TOTALS			12						612		28										68				
PROJECT TOTALS			12						612		28										68				

FROM	TO	ENDWALLS STD. 838.01 OR STD. 838.11 (UNLESS NOTED OTHERWISE) CY	REINFORCED ENDWALLS CY	DRAINAGE STRUCTURE MASONRY CY	QUANTITIES FOR DRAINAGE STRUCTURES 0' THRU 5' EACH	A 5' THRU 10' LIN. FT.	B 10' AND ABOVE LIN. FT.	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES, AND HOOD STD. 840.03 GRATE TYPE E	F	G	D.I. STD. 852.04 OR STD. 852.06	C.B. STD. 852.05	OPEN THROAT C.B. STD. 840.04 OR STD. 840.05	CONCRETE BRIDGE APPROACH D.I. STD. 840.13	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME AND GRATES STD. 840.16	DRIVEWAY D.I. STD. 840.30	FRAME W/ GRATE FOR DRIVEWAY STD. 840.30	J.B. STD. 840.31 OR STD. 840.32	ANGLED VANE GRATES AND FRAMES STD. 840.33	M.H. STD. 840.51, STD. 840.52, OR STD. 840.53	M.H. FRAME AND COVER STD. 840.54	CONVERT EXISTING C.B. TO J.B.	FLOWABLE FILL CY	CONCRETE COLLARS CL. "B" STD. 840.72 CY	CONCRETE AND BRICK PIPE PLUG STD. 840.71 CY	PIPE REMOVAL LIN. FT.	REMARKS
0400					1			1			1																		
0400	0401																												
0401					1															1		1	1						
0402					1			1			1																		
0402	0403																												
0403					1			1			1																		
0403	0404																												
0404					1			1			1																		
0404	0405																												
0405					1			1			1																		
0405	0406																												
0406					1			1			1																		
0406	0407																												
0407					1			1		1																			
0407	0408																												
0409					1			1			1																		
0409	0410																												
0410					1			1		1																			
0410	0411																												
0412					1			1	1																				
0412	0413																												
0414		3.400																											
SHEET TOTALS		3.400			11			10	1	2	7									1		1	1						
PROJECT TOTALS		3.400			11			10	1	2	7									1		1	1						

NOTE: TOTAL LIN. FT. FOR PAY QUANTITY SHALL BE A + (1.3 X B)

ABBREVIATIONS

C.A.A.	CORRUGATED ALUMINIUM ALLOY
C.B.	CATCH BASIN
C.S.	CORRUGATED STEEL
D.I.	DROP INLET
G.D.I.	GRATED DROP INLET
H.D.P.E.	HIGH DENSITY POLYETHYLENE
J.B.	JUNCTION BOX
M.H.	MANHOLE
N.S.	NARROW SLOT
P.V.C.	POLYVINYL CHLORIDE
R.C.	REINFORCED CONCRETE
T.B.D.I.	TRAFFIC BEARING DROP INLET
T.B.J.B.	TRAFFIC BEARING JUNCTION BOX
W.S.	WIDE SLOT

COMPUTED BY: DMB DATE: 9/21/23
CHECKED BY: REK DATE: 9/21/23

(2-3-23)

PROJECT NO.	SHEET NO.
HA-0007	3G-1

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SUMMARY OF SUBSURFACE DRAINAGE

LINE	Station	Station	Location LT/RT/CL	Drain Type* UD/BD/SD	LF
CONTINGENCY				SD	200
				TOTAL LF:	200

*UD = Underdrain
*BD = Blind Drain
*SD = Subsurface Drain

SUMMARY OF AGGREGATE SUBGRADE/STABILIZATION

LINE	Station	Station	Aggregate Type* ASU(1/2)/ AST	Aggregate Thickness INCHES [8" for ASU(2)]	Shallow Undercut CY	Class IV Subgrade Stabilization TONS	Geotextile for Subgrade Stabilization SY	Stabilizer Aggregate TONS	Class IV Aggregate Stabilization TONS
-L-	16+00	18+25	ASU 2	8	75				
-L-	21+25	29+90	ASU 2	8	825				
-L-	16+00	29+90	ASU 2	8		4300	6650		
CONTINGENCY									
			TOTAL CY/TONS/SY:		900	4300**	6650**	0	0

*ASU(1/2) = Aggregate Subgrade (Type 1 or 2)
*AST = Aggregate Stabilization
**Total tons of "Class IV Subgrade Stabilization" and total square yards of "Geotextile for Subgrade Stabilization" are only the estimated quantities for ASU(1/2)/AST and may only represent a portion of the subgrade stabilization and geotextile quantities shown in the Item Sheets of the Proposal.

8/17/99

REVISIONS

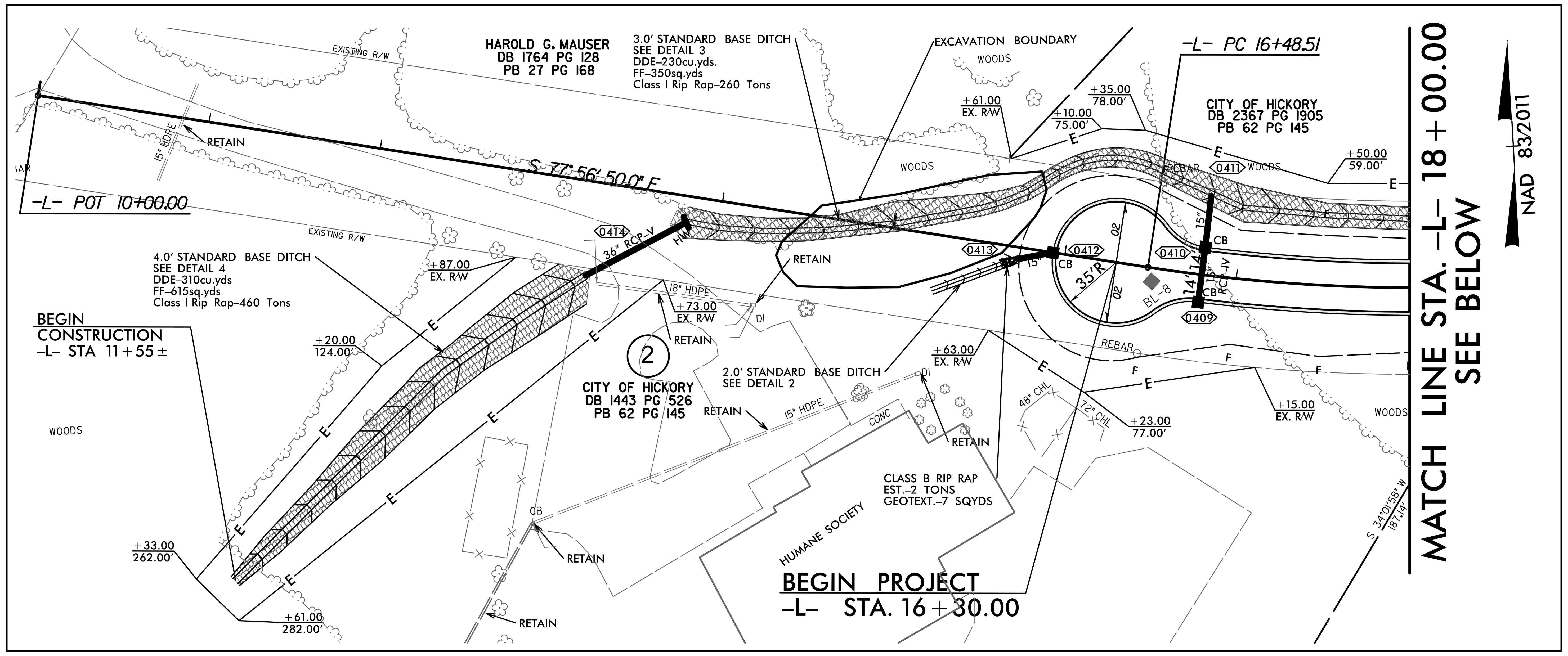
PROJECT REFERENCE NO.	SHEET NO.
HA-0007	4
R/W SHEET NO.	

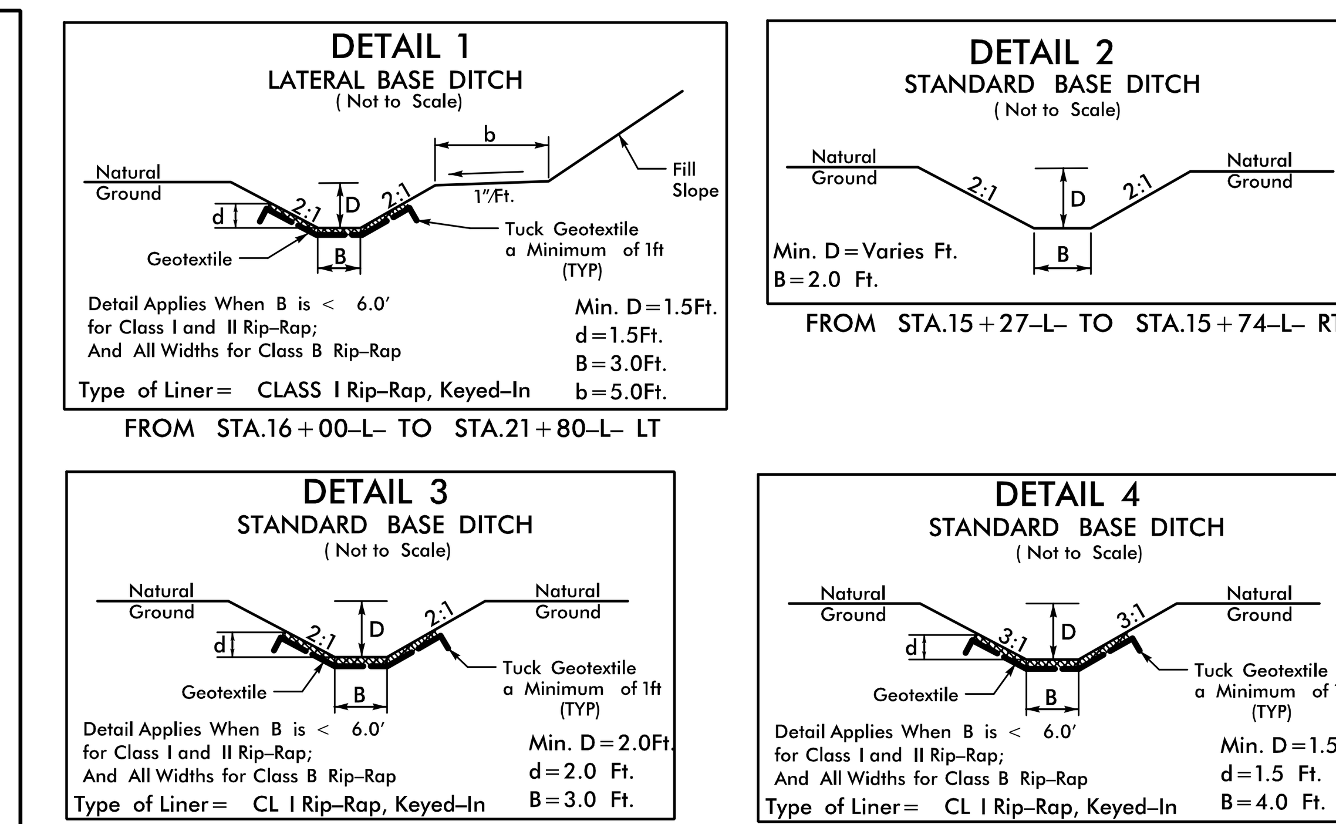
ROADWAY DESIGN ENGINEER — SEAL 35018 — JIMMY L. TERRY — 12/8/2023

HYDRAULICS ENGINEER — SEAL 024897 — John W. Twisdale, Jr. — 12/8/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

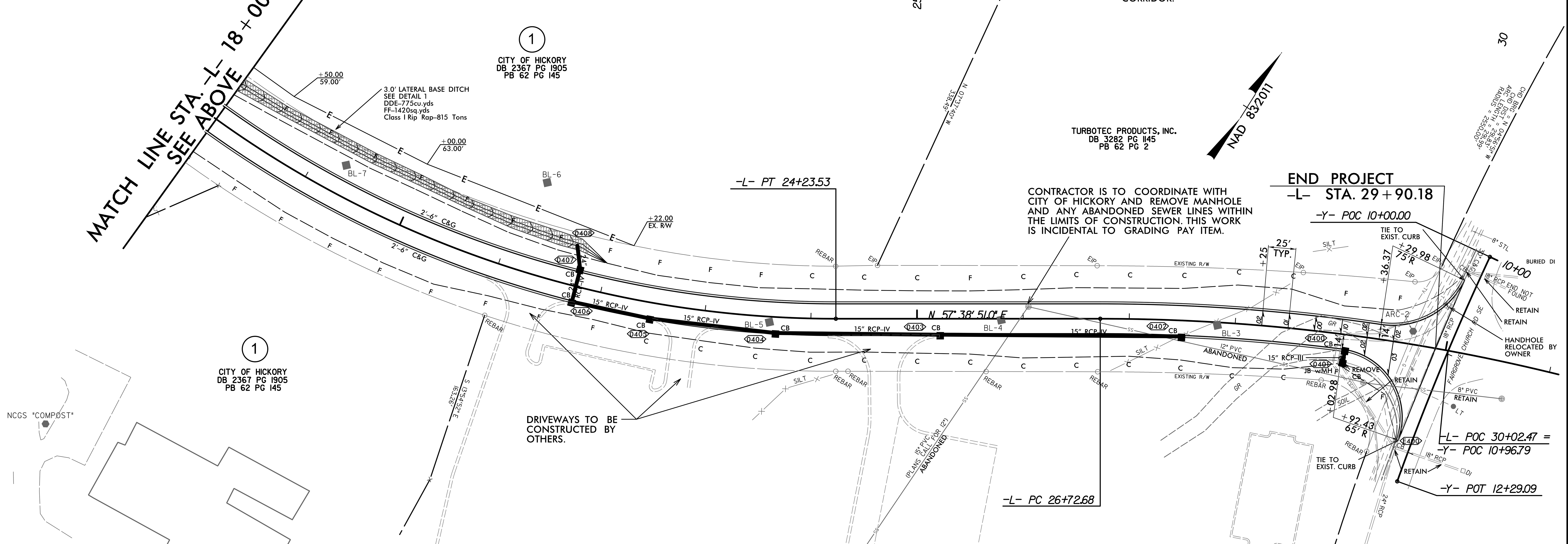
TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275





NOTE:
SITE PLAN SHOWN FOR INFORMATION ONLY. CONTRACTOR IS NOT RESPONSIBLE FOR CONSTRUCTION OF THESE AREAS. COORDINATION WILL BE REQUIRED WITH SITE CONTRACTOR.

NOTE:
COORDINATE WITH CITY OF HICKORY CONCERNING ONGOING WATER LINE INSTALLATION ALONG THE CORRIDOR.



-L- CURVE DATA		-Y- CURVE DATA
PI Sta 20+56.66	PI Sta 29+16.47	PI Sta 11+14.62
Δ = 44° 24' 19.0" (LT)	Δ = 15° 25' 34.4" (RT)	Δ = 5° 15' 01.0" (LT)
D = 5° 43' 46.5"	D = 3° 10' 59.2"	D = 2° 17' 30.6"
L = 775.02'	L = 484.63'	L = 229.09'
T = 408.15'	T = 243.79'	T = 114.62'
R = 1,000.00'	R = 1,800.00'	R = 2,500.00'

SEIS FBP, LLC
DB 3783 PG 82
PB 56 PG 168

FOR -L- PROFILE, SEE SHEET NO. 5

12/6/2023
X:\Municipalities\Hickory\ARC Fairgrove Industrial Access\Roadway\Proj\Fairgrove_Rdy_psh.dgn

5/28/99

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	5

ROADWAY DESIGN ENGINEER

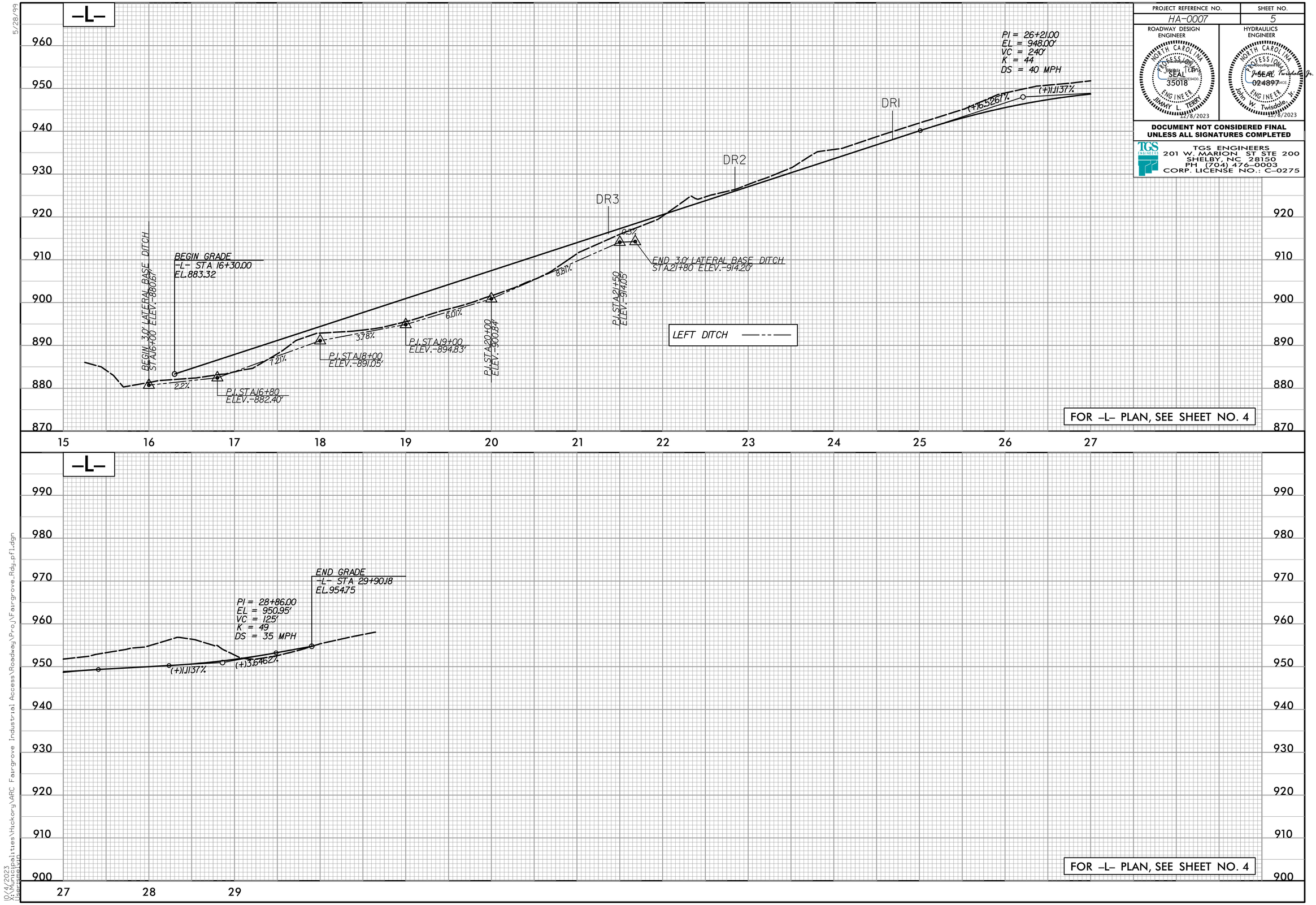
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 35018 JIMMY L. TERRY ENGINEER
12/8/2023

HYDRAULICS ENGINEER

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 024897 John W. Twisdale, Jr. ENGINEER
12/8/2023

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275



10/4/2023
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Username\vdp

SURVEY CONTROL SHEET

W/ EXISTING CENTERLINE ALIGNMENTS PRIOR TO CONSTRUCTION

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	RW02C-1

Location and Surveys

TGS ENGINEERS
201 WEST MARION STREET
SUITE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PROJECT SURVEYOR

DocuSigned by: Matthew Cornwell EBD36F11473E475...

11/1/2023

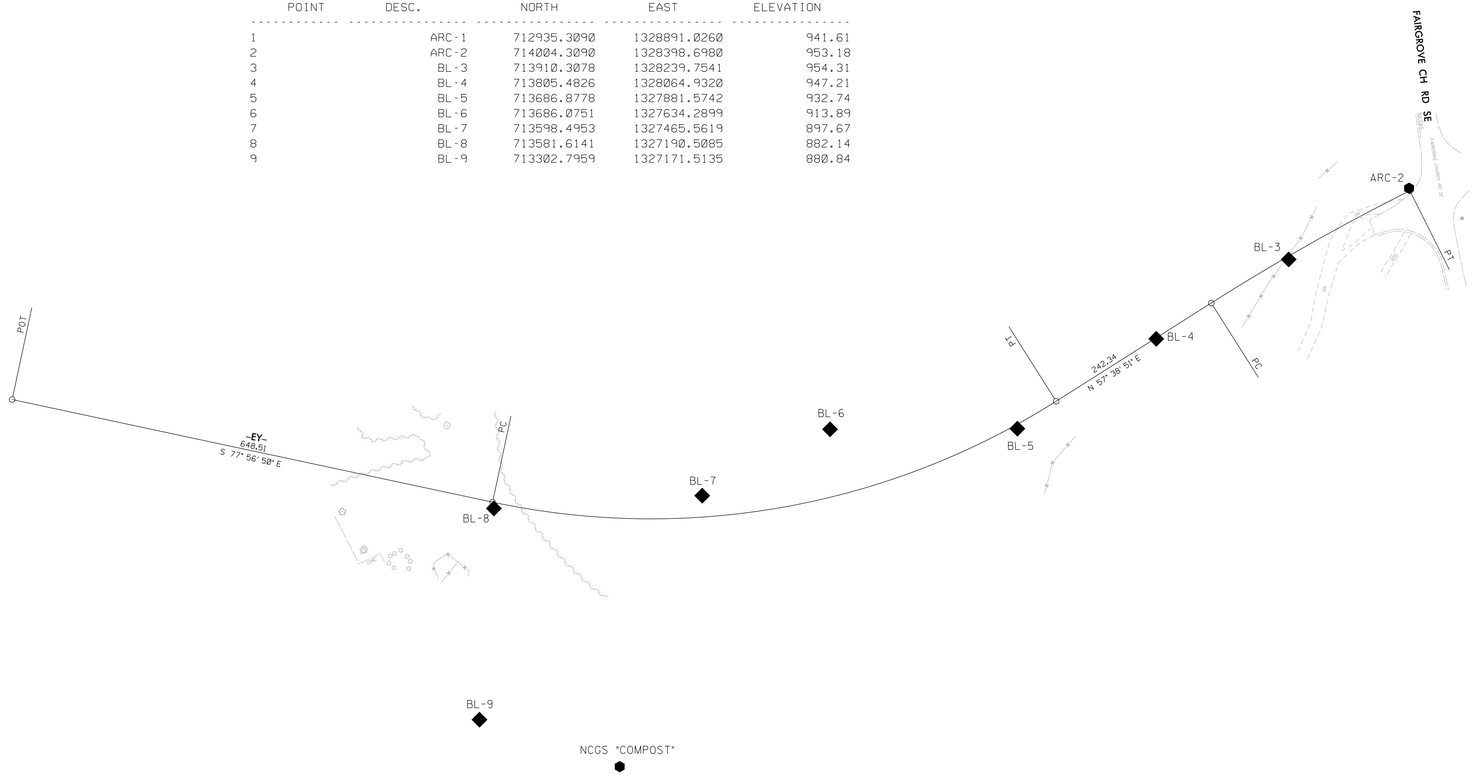
NORTH CAROLINA PROFESSIONAL SEAL L-4775 LAND SURVEYOR MATTHEW T. CORNWELL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

NC GRID
NAD 83 NA 2011

BL

POINT	DESC.	NORTH	EAST	ELEVATION
1	ARC-1	712935.3090	1328891.0260	941.61
2	ARC-2	714004.3090	1328398.6980	953.18
3	BL-3	713910.3078	1328239.7541	954.31
4	BL-4	713805.4826	1328064.9320	947.21
5	BL-5	713686.8778	1327881.5742	932.74
6	BL-6	713686.0751	1327634.2899	913.89
7	BL-7	713598.4953	1327465.5619	897.67
8	BL-8	713581.6141	1327190.5085	882.14
9	BL-9	713302.7959	1327171.5135	880.84



EY

POINT	N	E	BEARING	DIST	DELTA	D	L	T	R
POT	713725.364	1326554.657							
LINE			S 77°56'50.0" E	648.51					
PC	713589.946	1327188.875							
CURVE			N 79°51'00.5" E	755.77	44°24'19.0"(LT)	05°43'46.5"	775.02	408.15	1000.00
PT	713723.130	1327932.815							
LINE			N 57°38'51.0" E	242.34					
PC	713852.812	1328137.536							
CURVE			N 60°31'27.9" E	301.14	05°45'13.9"(RT)	01°54'35.5"	301.27	150.76	3000.00
PT	714000.991	1328399.702							

I, Matthew T. Cornwell, PLS, certify that the Project Control was performed under my supervision from an actual GPS survey made under my supervision and the following information was used to perform the survey:

Class of survey: ***AA***
Type of GPS field procedure: RTN
Dates of survey: 6/2/2023
Datum/Epoch: NAD83/2011
Published/Fixed-control use: N/A
Localized around: ARC-2
Northing:714004.309
Easting: 1328398.698
Combined grid factor: 0.99986131
Geoid model: GEOID18
Units: US Survey Feet

I also certify that the Baseline Control for this project was completed under my direct and responsible charge from an actual survey made under my supervision; that all horizontal closures had a minimum ratio of precision of 1:20,000 (Class AA) and Vertical accuracy to Class A. Field work was performed June 2023, and all coordinates are based on NAD 83/2011 and all elevations are based on NAVD 88; that this survey was performed to meet the requirements of 21NCAC 56.1600 as applicable.

This 11/1/2023

DocuSigned by: Matthew Cornwell EBD36F11473E475...

Professional Land Surveyor L-4775

ARC-1

NOTES:

1. PROJECT CONTROL WAS ESTABLISHED USING GNSS, THE GLOBAL NAVIGATION SATELLITE SYSTEM.
2. THE SURVEY CONTROL DATA FOR THIS PROJECT HAS BEEN COMPILED FROM VARIOUS SOURCES. IF FURTHER INFORMATION REGARDING PROJECT CONTROL IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

01-NOV-2023 13:58
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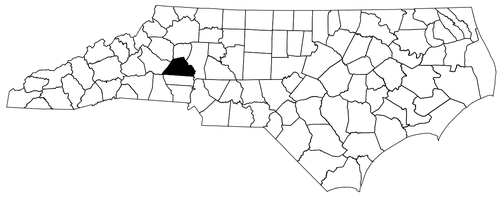
mcornwell AT MCORNWELLLAPTOP

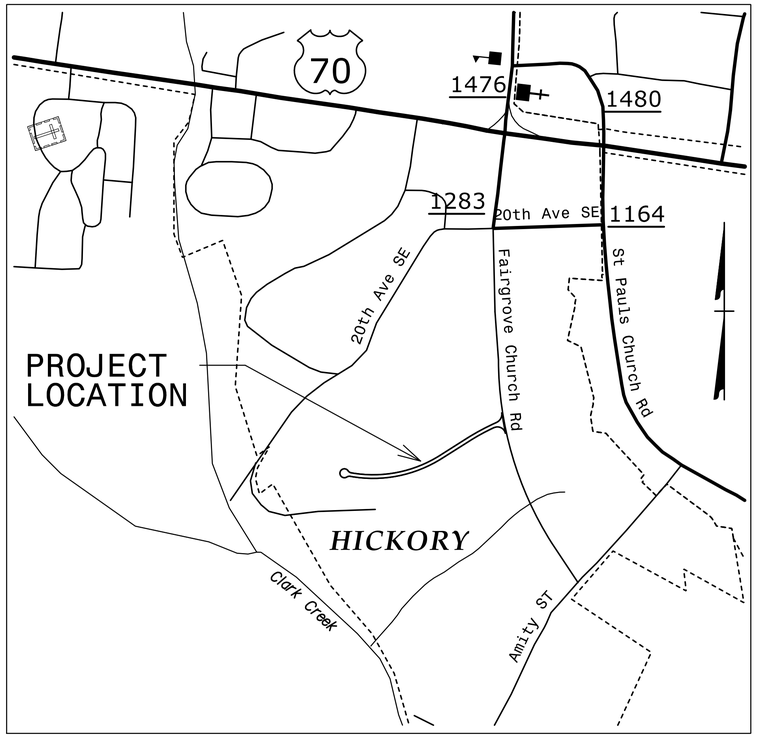
11/2023

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

CATAWBA COUNTY





VICINITY MAP

INDEX OF SHEETS

SHEET NO.
TMP-1

TIP PROJECT: HA-0007

WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

PLANS PREPARED BY:

JIMMY TERRY, PE
PROJECT ENGINEER

SANDRA MELVIN
PROJECT DESIGN ENGINEER

NCDOT CONTACTS:

COLE GURLEY, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PLAN PREPARED FOR N.C.D.O.T. BY:

TGS ENGINEERS
201 W. MARION ST, STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

APPROVED: DocuSigned by: Jimmy Terry FD39F38882E94D0...

DATE: 12/8/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

10/4/2023
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User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
HA-0007	TMP-1A

TGS ENGINEERS
201 W. MARION ST., STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1130.01	DRUMS
1135.01	CONES
1145.01	BARRICADES
1150.01	FLAGGING DEVICES
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. PVMT.
- NORTH ARROW
- PROPOSED PVMT.
- TEMP. SHORING (LOCATION PURPOSES ONLY)
- WORK AREA
- REMOVAL
- USER DEFINED (IF NEEDED)
- USER DEFINED (IF NEEDED)

SIGNALS

EXISTING · PROPOSED · TEMP TEMPORARY · PORT PORTABLE

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE III)
- CONE
- DRUM · SKINNY DRUM · TUBULAR MARKER
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

PAVEMENT MARKING SYMBOLS

APPROVED: DocuSigned by: Jimmy Terry FD39F38882E94D0...

DATE: 12/8/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

10/4/2023
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User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
HA-0007	TMP-1B

TGS ENGINEERS
201 W. MARION ST. STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

LANE AND SHOULDER CLOSURE REQUIREMENTS

A) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

B) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

C) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

D) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

SIGNING

E) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

TRAFFIC CONTROL DEVICES

F) PLACE TYPE III BARRICADES, WITH "ROAD CLOSED" SIGN R11-2 ATTACHED, OF SUFFICIENT LENGTH TO CLOSE ENTIRE ROADWAY.

PAVEMENT MARKINGS AND MARKERS

G) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE.

MANAGEMENT STRATEGIES

THE FOLLOWING LISTED WORK ZONE STRATEGIES ARE RECOMMENDED FOR INCLUSION WITHIN THIS TRANSPORTATION MANAGEMENT PLAN (TMP).

RECOMMENDED STRATEGIES:

TRAFFIC MANAGEMENT STRATEGIES:
- FULL ROADWAY CLOSURES
- LANE SHIFTS OR CLOSURES
- SHOULDER CLOSURES
- ONE-LANE, TWO WAY OPERATION (FLAGGING)

APPROVED: Docusigned by: Jimmy Terry FD39F3668E9HO0...

DATE: 12/8/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

10/4/2023
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User:smelvin

PROJ. REFERENCE NO.	SHEET NO.
HA-0007	TMP-2

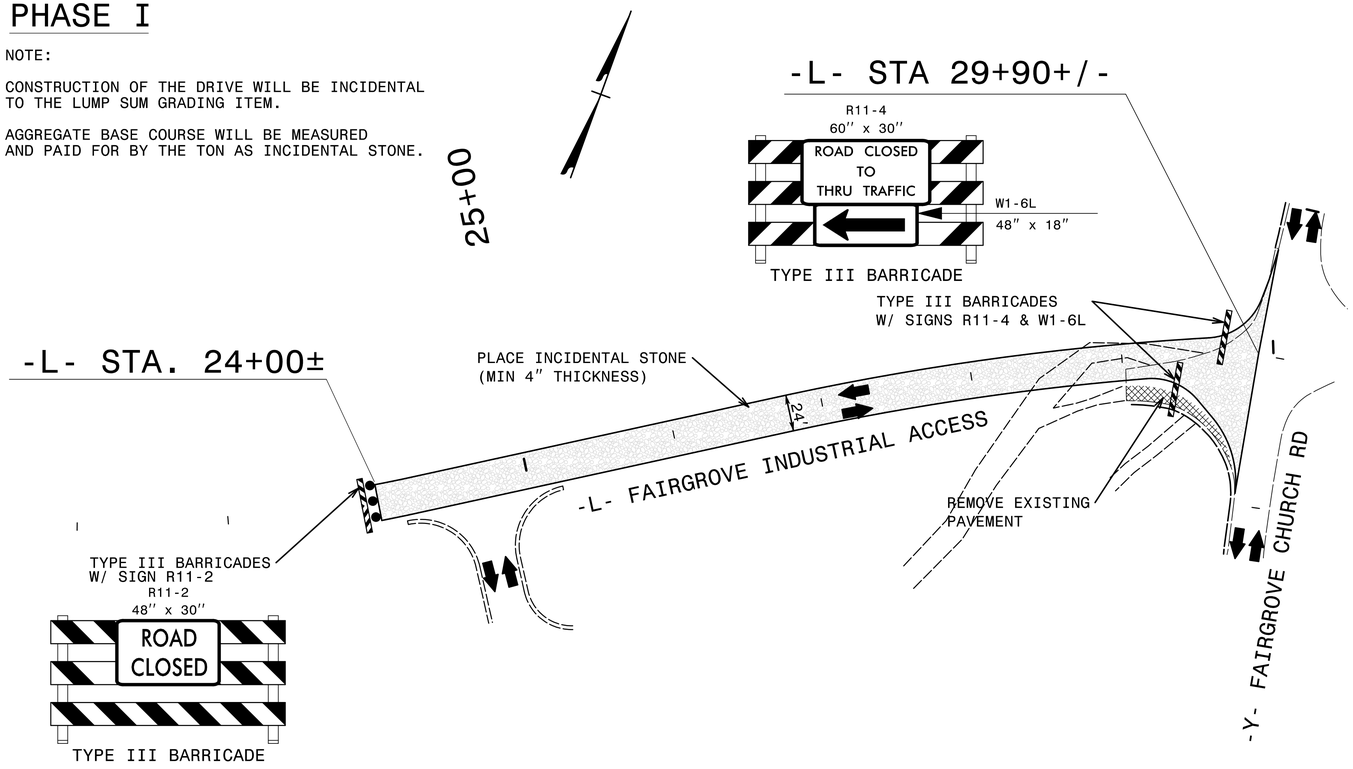
TGS ENGINEERS
201 W. MARION ST. STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

PHASE I

NOTE:

CONSTRUCTION OF THE DRIVE WILL BE INCIDENTAL TO THE LUMP SUM GRADING ITEM.

AGGREGATE BASE COURSE WILL BE MEASURED AND PAID FOR BY THE TON AS INCIDENTAL STONE.



PHASING

NOTE: COORDINATE WITH SITE CONTRACTOR AS NEEDED.

PHASE I

1. PLACE ADVANCE WARNING SIGNS ALONG FAIRGROVE CHURCH RD (-Y-) AS DIRECTED BY THE ENGINEER IN ACCORDANCE WITH NCDOT RSD 1101.01, SHEET 3 OF 3.
2. PLACE DRUMS AND BARRICADES AS SHOWN ON PLANS.
3. TO CONNECT DRIVEWAY (RT OF -L- STA 24+75+/-) TO FAIRGROVE CHURCH RD (-Y-) PLACE INCIDENTAL STONE AS SHOWN ON PLANS.

   COMPLETE ALL WORK DESCRIBED IN PHASE I, STEPS 1 THRU 3 BY NOVEMBER 15, 2024. SEE INTERMEDIATE CONTRACT TIME AND LIQUIDATED DAMAGES.

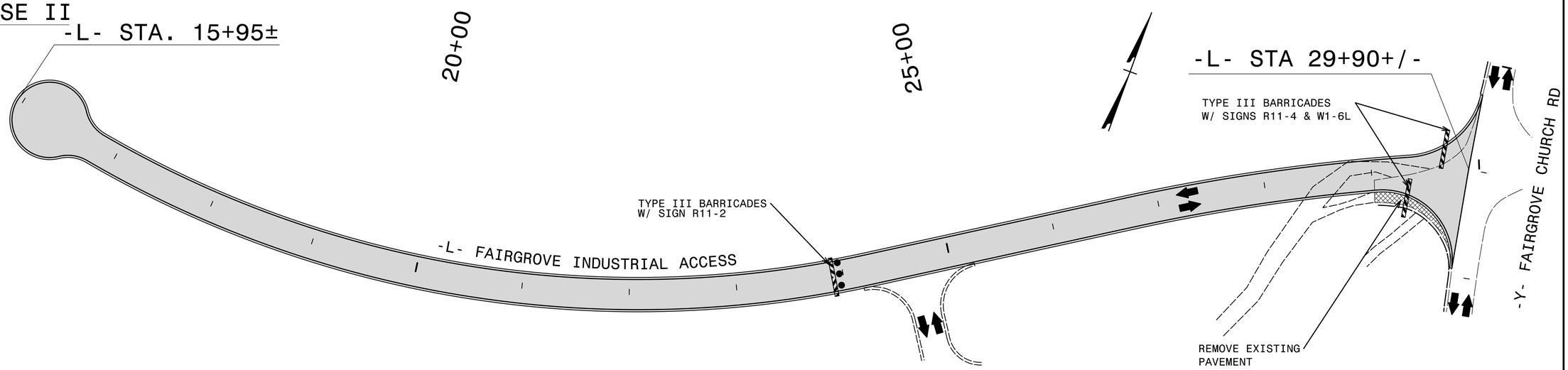
PHASE II

THE CONTRACTOR MAY START WORK DESCRIBED IN PHASE II PRIOR TO FINISHING PHASE I.

1. WHILE MAINTAINING ACCESS TO THE DRIVEWAY AT RT OF -L- STA 24+75+/- PLACE ALL PROPOSED DRAINAGE, PLACE CURB AND GUTTER, AND CONSTRUCT FAIRGROVE INDUSTRIAL ACCESS (-L-) UP TO AND INCLUDING THE FINAL LAYER OF SURFACE COURSE FROM -L- STA 15+95± TO -L- STA 29+90±. USE FLAGGERS AS NEEDED.

   USE FLAGGERS AND TEMPORARY LANE CLOSURES ALONG FAIRGROVE CHURCH RD (-Y-) TO CONSTRUCT TIE-IN TO NEW ROAD.
2. PLACE PAVEMENT MARKINGS AS SHOWN ON PAVEMENT MARKING PLANS.
3. REMOVE ALL TRAFFIC CONTROL DEVICES AND OPEN FAIRGROVE INDUSTRIAL ACCESS TO TRAFFIC.

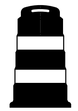
PHASE II



PROPOSED CONSTRUCTION

EXISTING PAVEMENT REMOVAL

INCIDENTAL STONE (ABC)



DRUM

APPROVED: DocuSigned by: Jimmy Terry FD39F38882E9400...

DATE: 6/20/2024

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

DIVISION OF HIGHWAYS * STATE OF NORTH CAROLINA * DEPARTMENT OF TRANSPORTATION * WORK ZONE TRAFFIC CONTROL

TEMPORARY TRAFFIC CONTROL PHASING AND PHASING DETAILS

6/20/2024
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User:smelvin

T.I.P.: HA-0007

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAVEMENT MARKING & SIGNING PLAN
CATAWBA COUNTY
LOCATION: FAIRGROVE INDUSTRIAL ACCESS
HICKORY, NC

TIP NO.	SHEET NO.
HA-0007	PMP-1

APPROVED: DocuSigned by: Jimmy Terry FD39F38882E94D0... DATE: 12/8/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX

ROADWAY STANDARD DRAWING

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2024 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
904.10	ORIENTATION OF GROUND MOUNTED SIGNS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTILANE ROADWAYS
1205.04	PAVEMENT MARKINGS - INTERSECTIONS

GENERAL NOTES
PAVEMENT MARKINGS

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT, EXCEPT WHEN OTHERWISE NOTED IN THE PLAN, OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ROAD NAME	MARKING	MARKER
FAIRGROVE INDUSTRIAL ACCESS (-L-)	PAINT	NONE

B) PLACE TWO APPLICATIONS OF PAINT PAVEMENT MARKINGS ON THE FINAL WEARING SURFACE. PLACE THE SECOND APPLICATION OF PAINT UPON SUFFICIENT DRYING TIME OF THE FIRST.

GENERAL NOTES
SIGNING

. SIGNS FURNISHED BY STATE
. CONFIRM IN WRITING AT LEAST 4 MONTHS IN ADVANCE, THE ACTUAL DATE THE DEPARTMENT FURNISHED SIGNS WILL BE REQUIRED.
. THE BACKGROUND FOR TYPE E & F SIGNS SHALL BE TYPE C REFLECTIVE SHEETING.

SUMMARY OF QUANTITIES

ITEM NO.		ITEM DESCRIPTION	QUANTITY	UNIT
DESC. NO.	SECT. NO.			
4072000000	903	SUPPORTS, 3 LB STEEL U-CHANNEL	27	L.F.
4102000000	904	SIGN ERECTION, TYPE E	2	EA.

FINAL PAVEMENT MARKING SCHEDULE

SYMBOL	DESCRIPTION
PAVEMENT MARKINGS	
PAINT (4")	
P5	(4") 2 FT. - 6 FT./SP WHITE MINISKIP
P13	(4") YELLOW DOUBLE CENTER

PLAN SUBMITTED TO:

COLE GURLEY, PE
DIVISION PROJECT DEVELOPMENT ENGINEER

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

PLAN PREPARED BY: TGS Engineers

JIMMY TERRY, PE

SANDRA MELVIN DESIGN TECHNICIAN

TGS ENGINEERS
201 W. MARION ST, STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

11/28/2023
X:\Municipalities\Hickory\ARC Fairgrove Industrial Access\Traffic\pavement Marking\HA-0007_Sgn_PMP_01.dgn
User:smelvin

TIP NO.	SHEET NO.
HA-0007	PMP-2

APPROVED: DocuSigned by: Jimmy Terry FD39F38882E94D0...

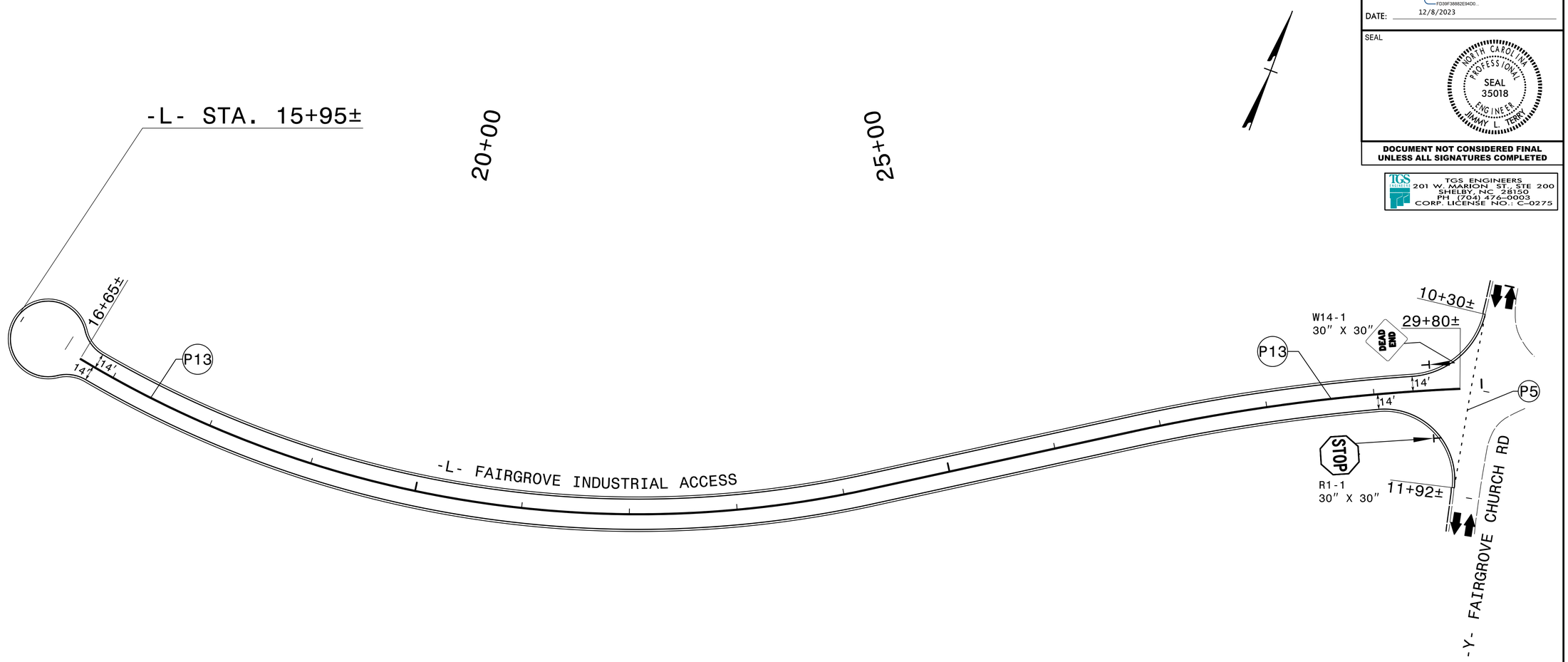
DATE: 12/8/2023

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 35018 ENGINEER JIMMY L. TERRY

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

TGS ENGINEERS
201 W. MARION ST. STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

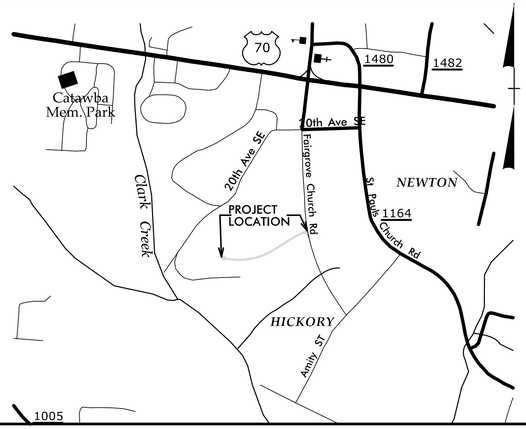


SEE PMP-1 FOR PAVEMENT MARKING SCHEDULE.

PAVEMENT MARKING DETAIL

10/4/2023
X:\Municipalities\Hickory\ARC Fairgrove Industrial Access\Traffic\pavement Marking\HA-0007_Sgn_PMP_02.dgn
User:smelvin

TIP PROJECT: HA–0007



VICINITY MAP
NOT TO SCALE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	HA-0007	EC-1	

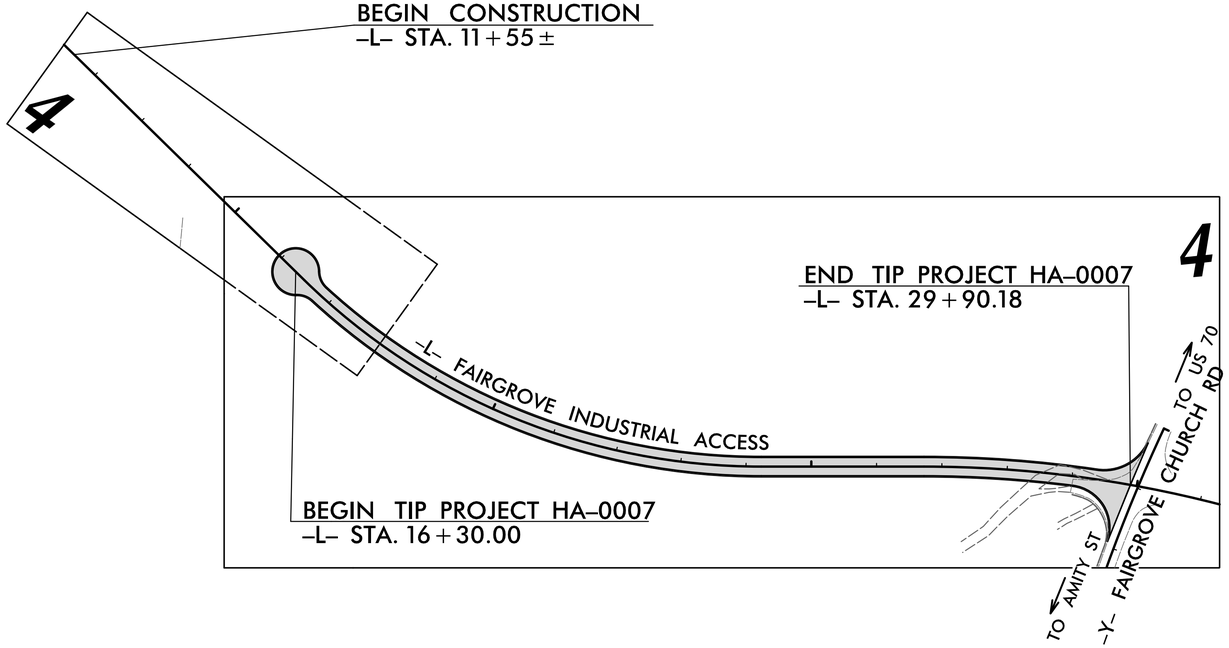
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
50850.1.1	5085114	PE
50850.2.1	5085114	R/W
50850.2.2	5085114	UTIL.
50850.3.1	5085114	CONST

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL
CATAWBA COUNTY

LOCATION: ARC FAIRGROVE INDUSTRIAL ACCESS

TYPE OF WORK: GRADING, PAVING, DRAINAGE, AND CURB & GUTTER

NAD 83/2011



THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

GRAPHIC SCALE

50 25 0 50 100
PLANS

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE APPLICABLE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE APRIL 1, 2019 AND ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY DIVISION OF WATER RESOURCES.

TGS ENGINEERS

Prepared In the Office of:
TGS ENGINEERS
201 W. MARION ST–STE 200
SHELBY, NC 28150

Designed by:
Andrew H. Cochrane, PE *3015*
NAME *LEVEL III CERTIFICATION NO.*

Roadway Standard Drawings

The "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2024 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	EC-02
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

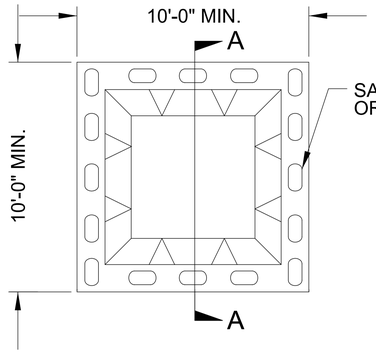
EROSION & SEDIMENT CONTROL LEGEND

Std. #	Description	Symbol
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1630.03	Temporary Silt Ditch	TSD
1630.04	Stilling Basin	
1630.05	Temporary Diversion	TD
1630.06	Special Stilling Basin	
1630.07	Skimmer Basin	
1630.08	Tiered Skimmer Basin	
1630.09	Earthen Dam with Skimmer	
	Infiltration Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C

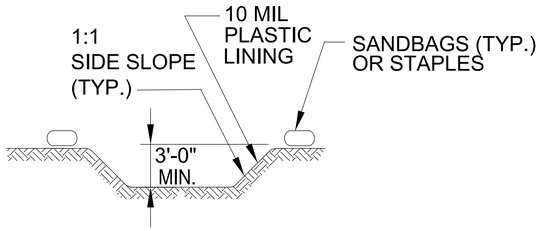
Std. #	Description	Symbol
1633.01	Temporary Rock Silt Check Type A	
1633.02	Temporary Rock Silt Check Type B	
1633.03	Temporary Rock Silt Check Type A with Excelsior Matting and Flocculant	
1634.01	Temporary Rock Sediment Dam Type A	
1634.02	Temporary Rock Sediment Dam Type B	
1635.01	Rock Pipe Inlet Sediment Trap Type A	A
1635.02	Rock Pipe Inlet Sediment Trap Type B	B
1636.01	Excelsior Wattle Check	
1636.01	Excelsior Wattle Check with Flocculant	
1636.01	Coir Fiber Wattle Check	
1636.01	Coir Fiber Wattle Check with Flocculant	
1636.02	Silt Fence Excelsior Wattle Break	EW
	Silt Fence Coir Fiber Wattle Break	CFW
1636.03	Excelsior Wattle Barrier	EW EW EW
1636.03	Coir Fiber Wattle Barrier	CFW CFW CFW

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	EC-2A
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



PLAN



SECTION A-A

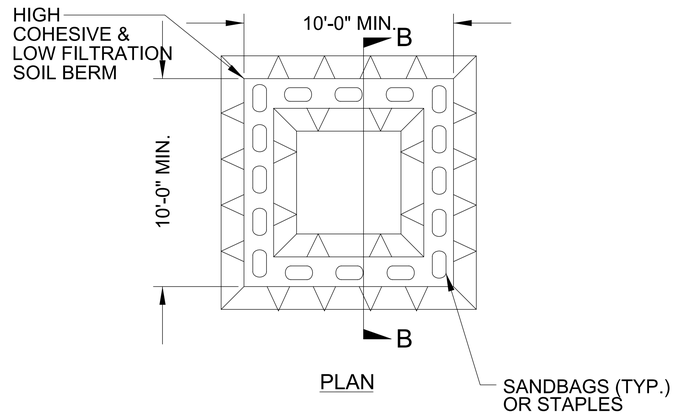
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

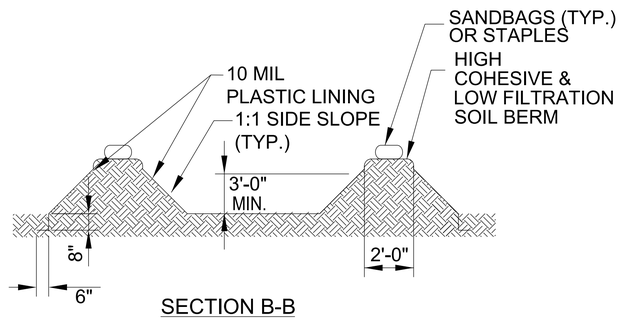
3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



PLAN



SECTION B-B

NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	EC-3
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
SLOPE STRAW MATTING					
4	L	16+50	21+00	RT	783
4	L	19+00	21+00	LT	249
DITCHLINE STRAW MATTING					
4	L	15+27	15+74	RT	45
	SLOPE STRAW MATTING SUBTOTAL				1032
	DITCHLINE STRAW MATTING SUBTOTAL				45
	DITCHLINE EXCELSIOR MATTING SUBTOTAL				0
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1,000
				TOTAL	2,077
				SAY	2,077

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	EC-3A
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

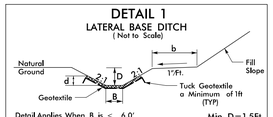
SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 TO 4:1	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH WITH SLOPES STEEPER THAN 4:1. 7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	7 DAYS FOR PERIMETER DIKES, SWALES, DITCHES PERIMETER SLOPES, AND HQW ZONES

PROJECT REFERENCE NO.	SHEET NO.
HA-0007	EC-4/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

TGS ENGINEERS
201 W. MARION ST-STE 200
SHELBY, NC 28150
PH (704) 476-0003
CORP. LICENSE NO.: C-0275

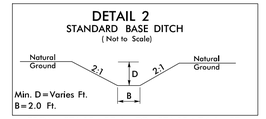
DETAIL 1
LATERAL BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0' for Class I and II Rip-Rap; And All Widths for Class B Rip-Rap
Type of Liner= CLASS I Rip-Rap, Keyed-In
Min. D=1.5Ft.
d=1.5Ft.
B=3.0Ft.
b=5.0Ft.

FROM STA.16+00-L- TO STA.21+80-L- LT

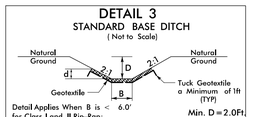
DETAIL 2
STANDARD BASE DITCH
(Not to Scale)



Min. D=Varies Ft.
B=2.0 Ft.

FROM STA.15+27-L- TO STA.15+74-L- RT.

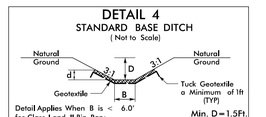
DETAIL 3
STANDARD BASE DITCH
(Not to Scale)



Detail Applies When B is < 6.0' for Class I and II Rip-Rap; And All Widths for Class B Rip-Rap
Type of Liner= CL I Rip-Rap, Keyed-In
Min. D=2.0Ft.
d=2.0 Ft.
B=3.0 Ft.

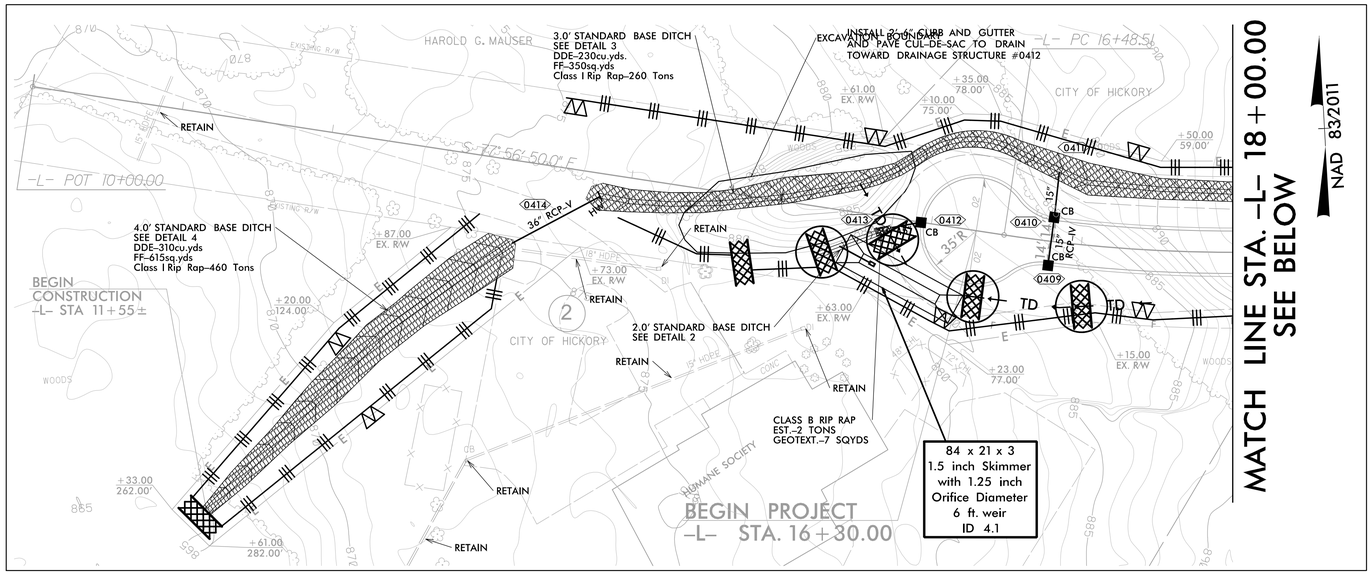
STA.13+80-L- TO STA.16+00-L- LT.

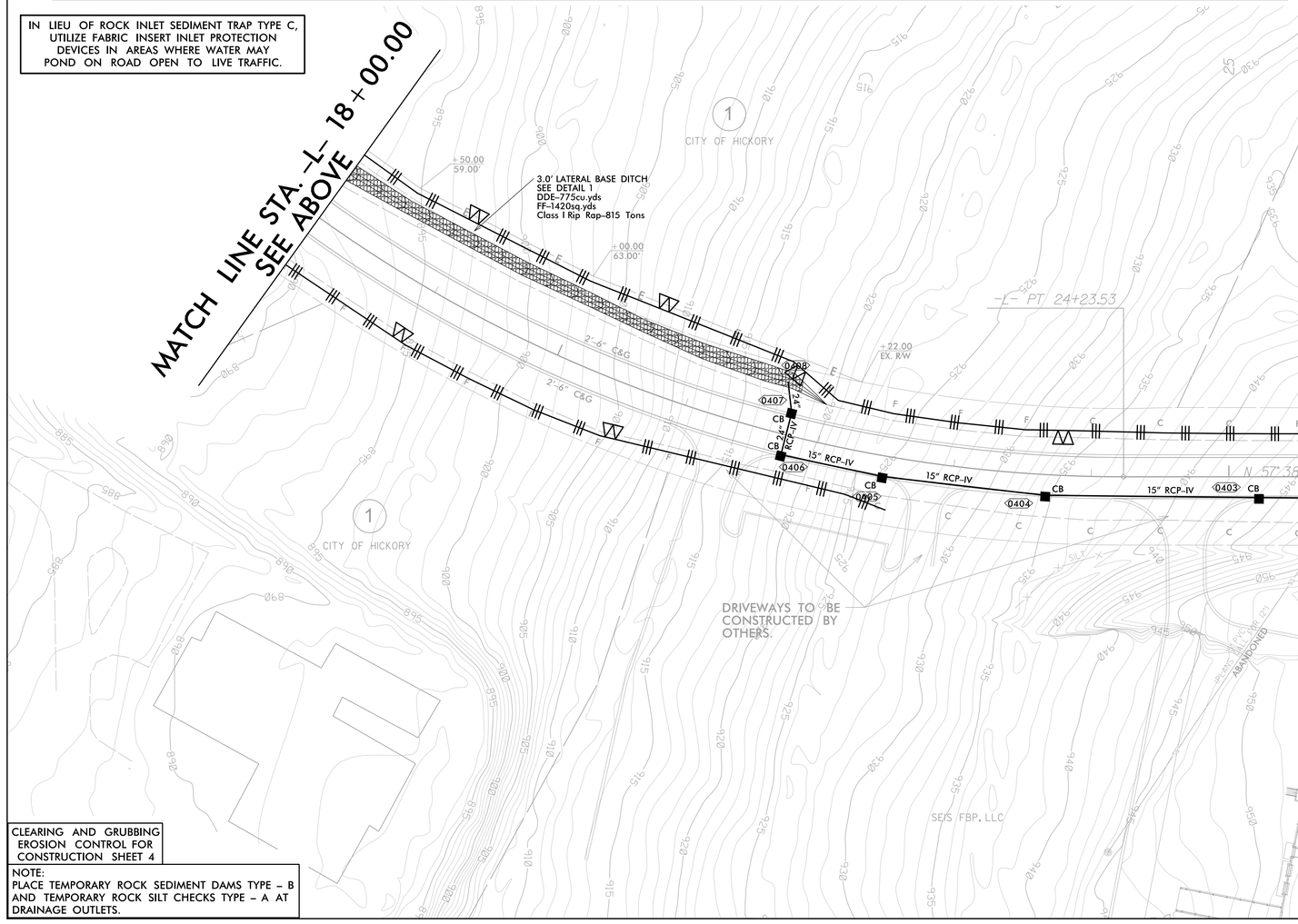
DETAIL 4
STANDARD BASE DITCH
(Not to Scale)

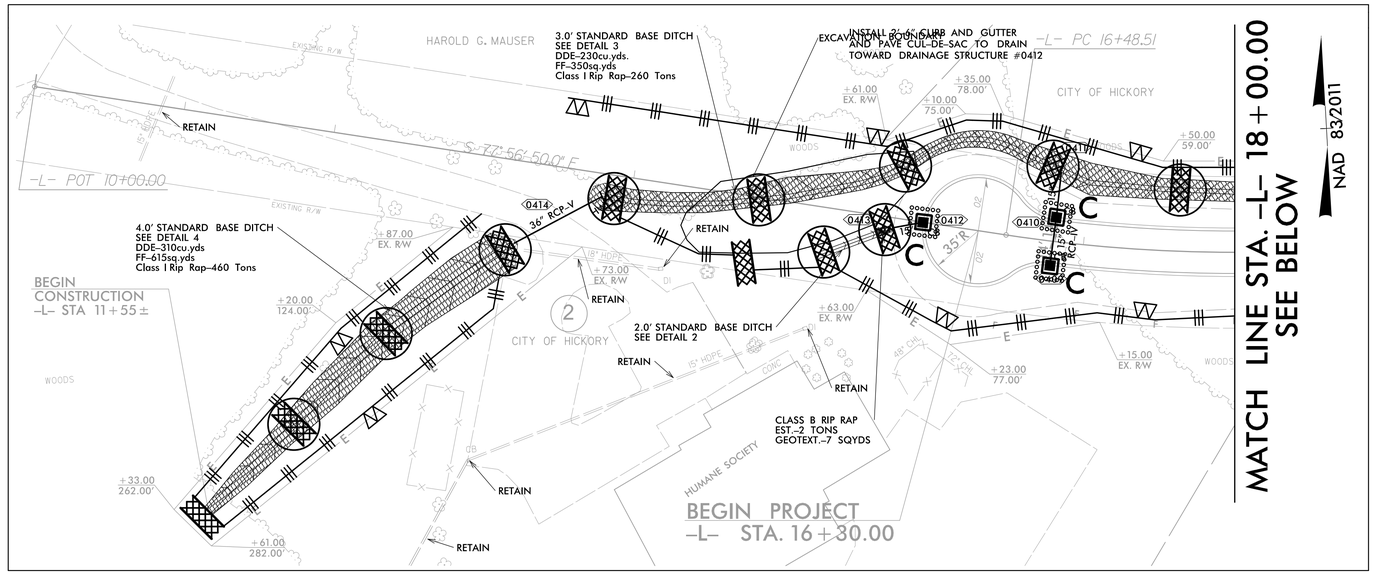


Detail Applies When B is < 6.0' for Class I and II Rip-Rap; And All Widths for Class B Rip-Rap
Type of Liner= CL I Rip-Rap, Keyed-In
Min. D=1.5Ft.
d=1.5 Ft.
B=4.0 Ft.

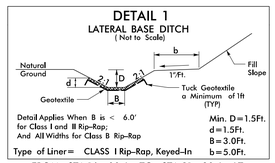
13+40-L- RT.





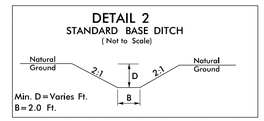


DETAIL 1
LATERAL BASE DITCH
(Not to Scale)



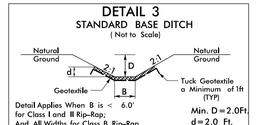
FROM STA.16+00–L– TO STA.21+80–L– LT

DETAIL 2
STANDARD BASE DITCH
(Not to Scale)



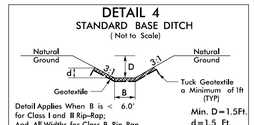
FROM STA.15+27–L– TO STA.15+74–L– RT.

DETAIL 3
STANDARD BASE DITCH
(Not to Scale)



STA.13+80–L– TO STA.16+00–L– LT.

DETAIL 4
STANDARD BASE DITCH
(Not to Scale)



13+40–L– RT.

PROJECT REFERENCE NO.	SHEET NO.
HA–0007	EC–5/CONST.4
R/W SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

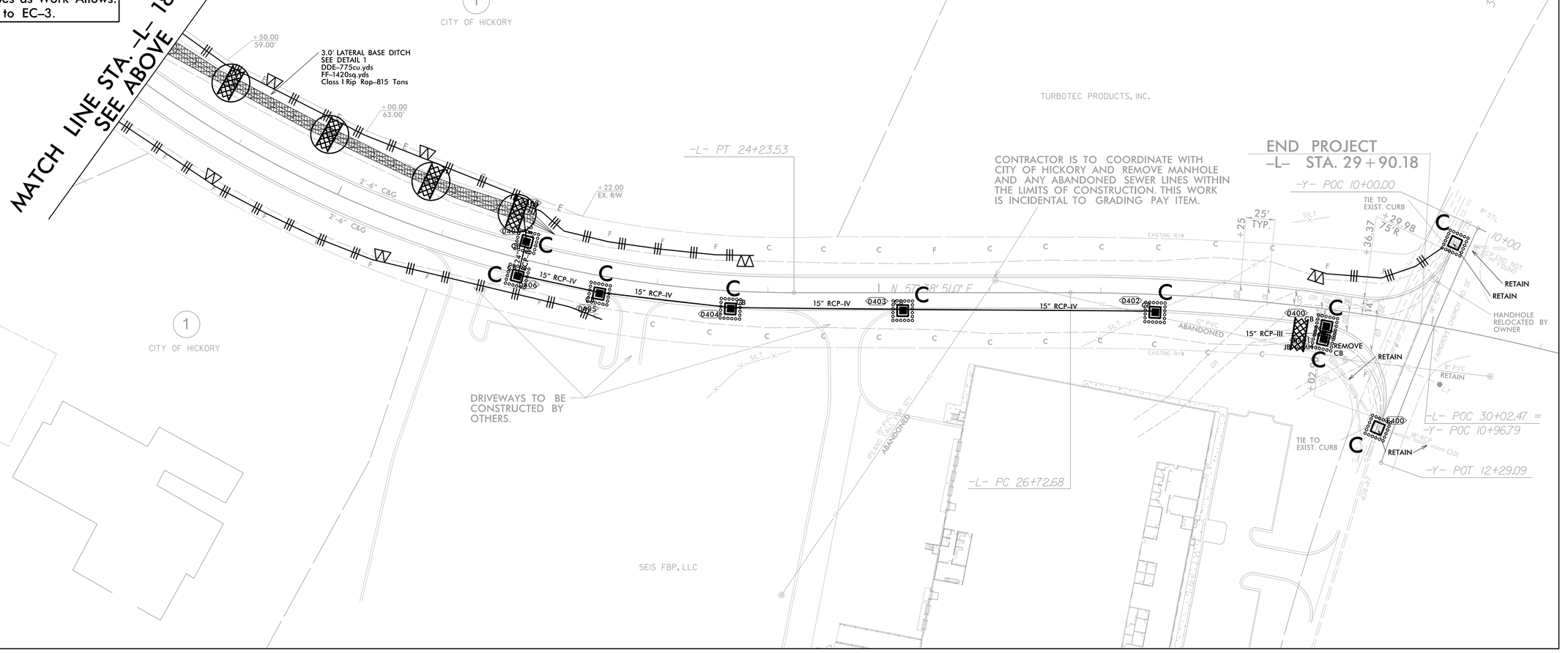
TGS ENGINEERS
201 W. MARION ST–STE 200
SHELBY, NC 28150
PH (704) 476–0003
CORP. LICENSE NO.: C–0275

IN LIEU OF ROCK INLET SEDIMENT TRAP TYPE C, UTILIZE FABRIC INSERT INLET PROTECTION DEVICES IN AREAS WHERE WATER MAY POND ON ROAD OPEN TO LIVE TRAFFIC.

Place Straw Matting for Erosion Control on Slopes as Work Allows. Refer to EC–3.

NOTE:
SITE PLAN SHOWN FOR INFORMATION ONLY. CONTRACTOR IS NOT RESPONSIBLE FOR CONSTRUCTION OF THESE AREAS. COORDINATION WILL BE REQUIRED WITH SITE CONTRACTOR.

NOTE:
COORDINATE WITH CITY OF HICKORY CONCERNING ONGOING WATER LINE INSTALLATION ALONG THE CORRIDOR.



PROJ. REFERENCE NO.	SHEET NO.
HA-0007	X-1A

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

NOTE: EMBANKMENT COLUMN DOES NOT INCLUDE BACKFILL FOR UNDERCUT

CROSS-SECTION SUMMARY

Station L	Uncl. Exc. (cu. yd.)	Embt (cu. yd.)
15+93.00	0	0
16+30.00	4	69
16+50.00	4	75
17+00.00	6	268
17+50.00	1	347
18+00.00	2	229
18+50.00	1	250
19+00.00	0	471
19+50.00	0	571
20+00.00	0	598
20+50.00	0	579
21+00.00	0	369
21+50.00	1	121
22+00.00	33	35
22+50.00	119	9
23+00.00	160	2
23+50.00	181	2
24+00.00	265	1
24+50.00	294	0
25+00.00	275	0
25+50.00	281	0
26+00.00	376	0
26+50.00	456	0
27+00.00	437	0
27+50.00	474	0
28+00.00	649	0
28+50.00	777	0
29+00.00	448	16
29+50.00	102	23
29+90.18	69	12

Approximate quantities only. Unclassified excavation, fine grading, clearing and grubbing and removal of existing asphalt pavement will be paid for at the lump sum price for "Grading".

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HA-0007	X-1

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

880 / 875 / 870

876.97
14+00.00

2:1 2:1
873.78

880 / 875 / 870

876.00
13+50.00

880 / 875 / 870

875.00
13+00.00

880 / 875 / 870

873.31
12+50.00

880 / 875 / 870

871.74
12+00.00

BEGIN CONSTRUCTION –L– STA. 11+55.00+/–

875 / 870 / 865

870.55
11+50.00

870 / 865 / 860

869.19
11+00.00

870 / 865 / 860

868.26
10+50.00

870 / 865 / 860

869.06
10+00.00
–L–

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

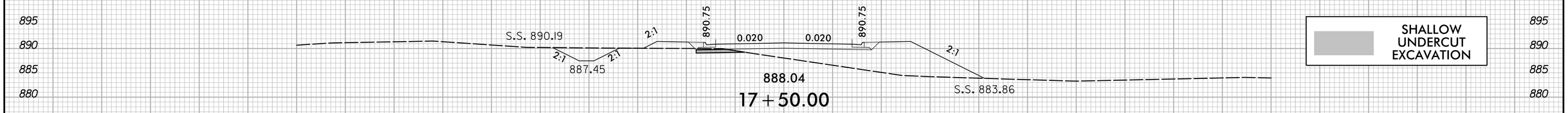
6/23/16

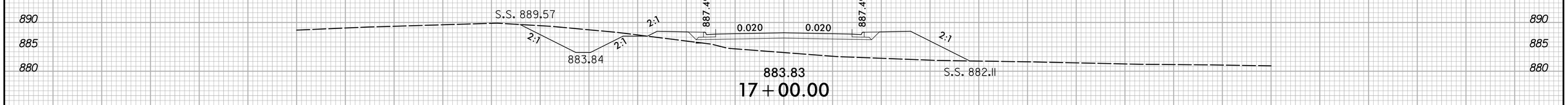
0 5 10

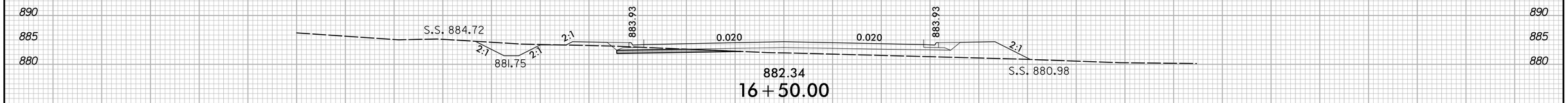
PROJ. REFERENCE NO.	SHEET NO.
HA-0007	X-2

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

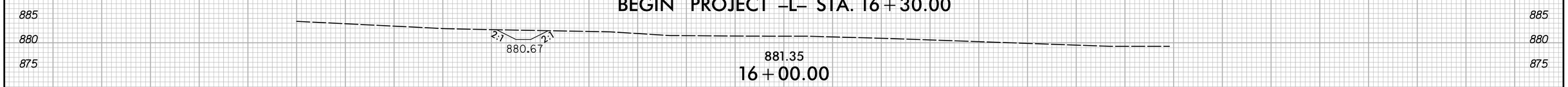
SHALLOW UNDERCUT EXCAVATION

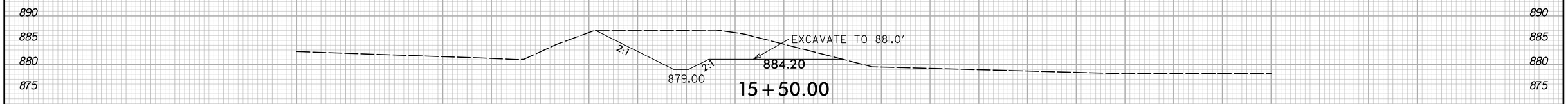


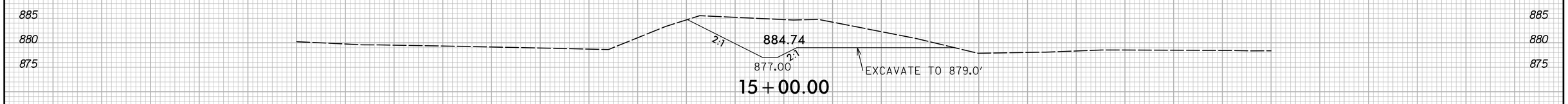




BEGIN PROJECT –L– STA. 16+30.00







–L–

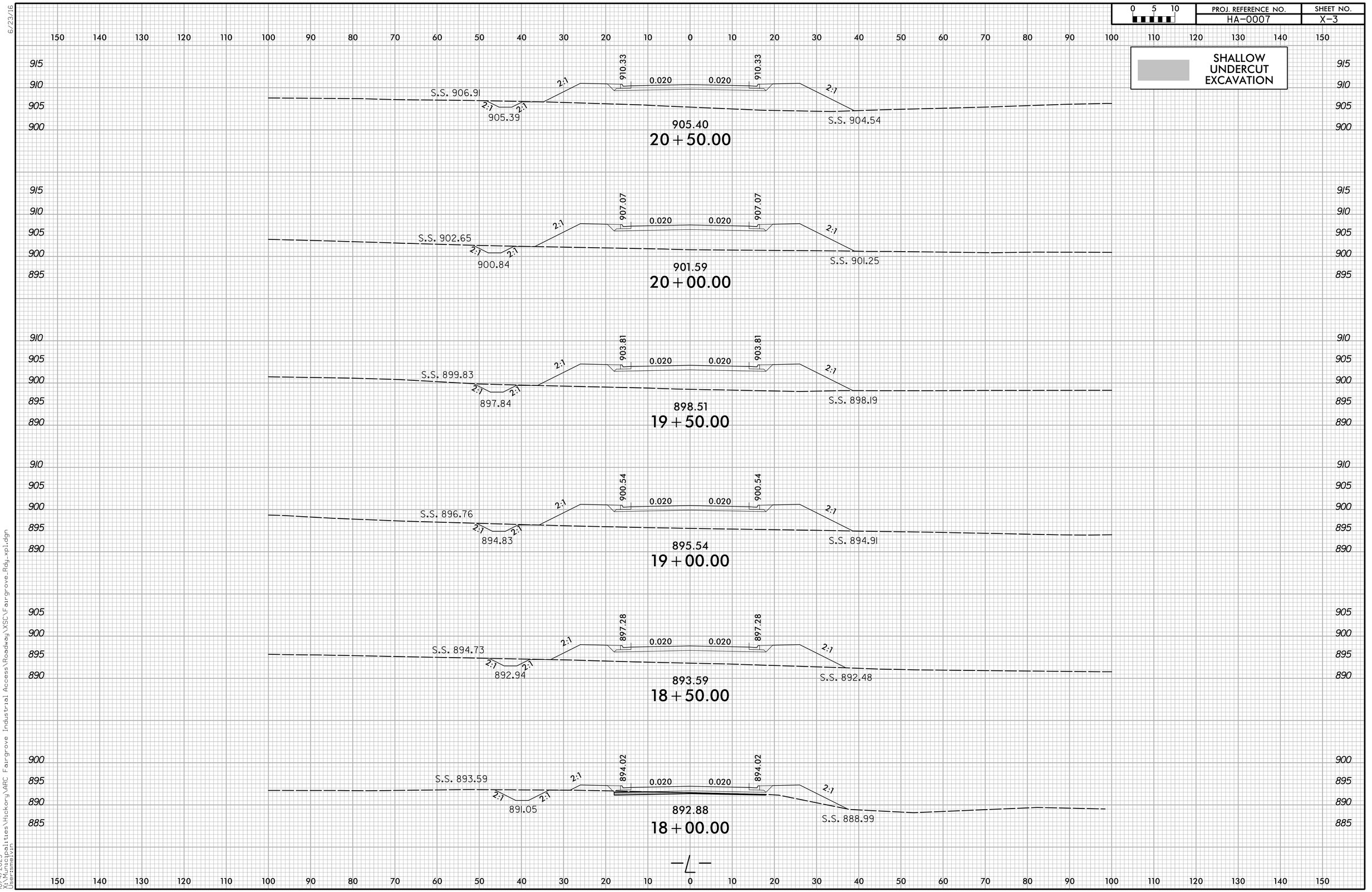
150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

10/4/2023
X:\Municipalities\Hickory\ARC Fairgrove Industrial Access\Roadway\XSC\Fairgrove_Rdy_xpl.dgn
User:smelvin

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HA-0007	X-3

SHALLOW UNDERCUT EXCAVATION



10/4/2023
X:\Municipalities\Hickory\ARC Fairgrove Industrial Access\Roadway\XSC\Fairgrove_Rdy_xpl.dgn
User:smelvin

6/23/16

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HA-0007	X-4

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

945 940 935 930

SHALLOW UNDERCUT EXCAVATION

S.S. 934.87 — 2:1 — 933.18 — 0.020 — 0.020 — 933.18 — 2:1 — S.S. 936.80

935.75

24+00.00

940 935 930 925

2:1 — 929.91 — 0.020 — 0.020 — 929.91 — 2:1 — S.S. 932.91

S.S. 930.32

931.45

23+50.00

935 930 925 920

2:1 — 926.65 — 0.020 — 0.020 — 926.65 — 2:1 — S.S. 928.61

S.S. 926.97

927.58

23+00.00

930 925 920

2:1 — 923.39 — 0.020 — 0.020 — 923.39 — 2:1 — S.S. 925.52

S.S. 923.90

924.69

22+50.00

930 925 920 915

2:1 — 920.12 — 0.020 — 0.020 — 920.12 — 2:1

S.S. 919.75 — S.S. 920.53

920.19

22+00.00

925 920 915 910

S.S. 916.60 — 2:1 — 2:1 — 914.05 — 2:1 — 916.86 — 0.020 — 0.020 — 916.86 — 2:1 — S.S. 915.98

915.94

21+50.00

920 915 910 905

S.S. 911.98 — 2:1 — 2:1 — 909.95 — 2:1 — 913.60 — 0.020 — 0.020 — 913.60 — 2:1 — S.S. 911.38

911.41

21+00.00

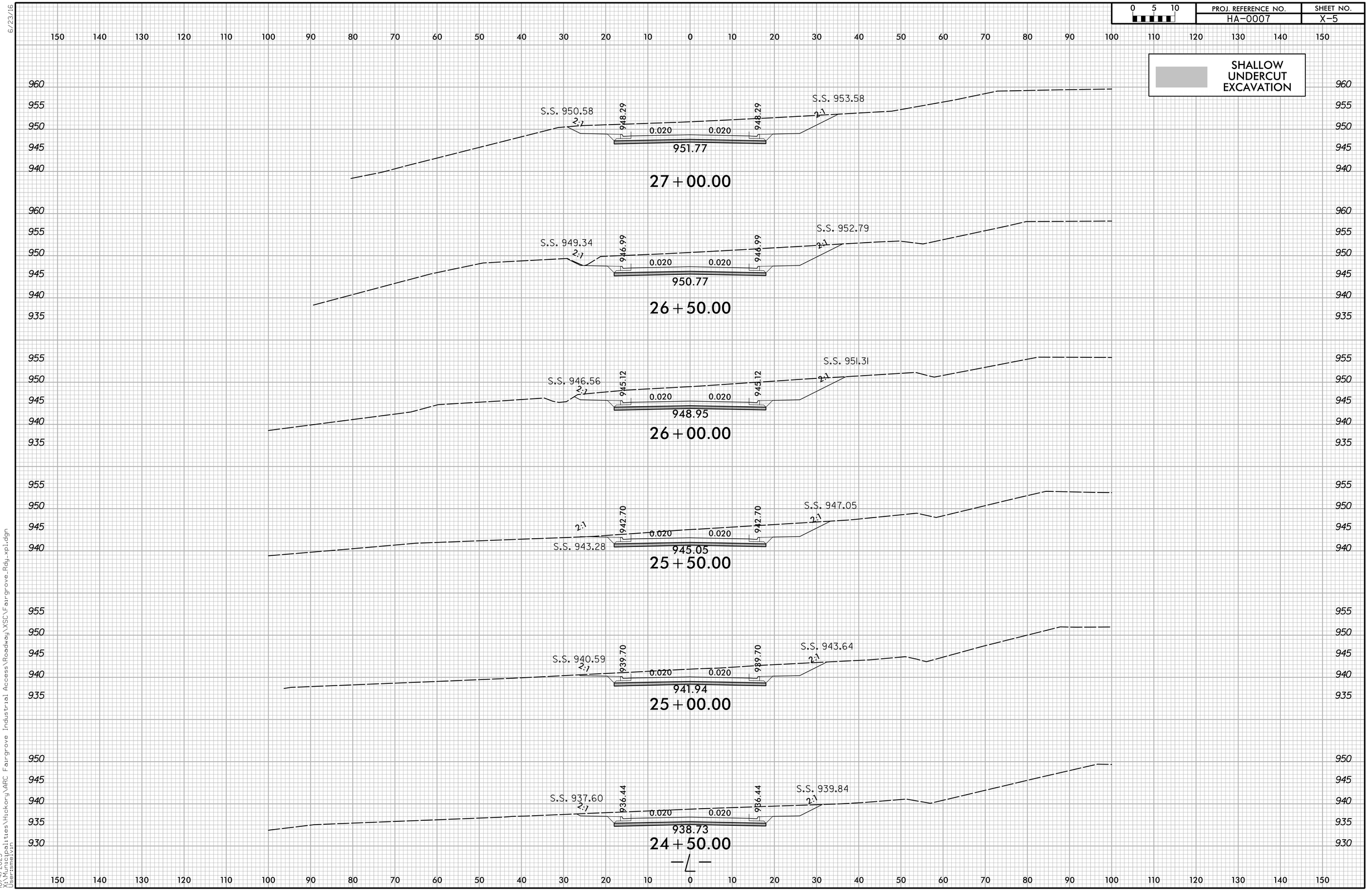
—℄—

150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

10/4/2023
X:\Municipalities\Hickory\ARC Fairgrove Industrial Access\Roadway\XSC\Fairgrove_Rdy_xpl.dgn
User:smelvin

0 5 10	PROJ. REFERENCE NO.	SHEET NO.
	HA-0007	X-5

SHALLOW UNDERCUT EXCAVATION



0 5 10	PROJ. REFERENCE NO.	SHEET NO.
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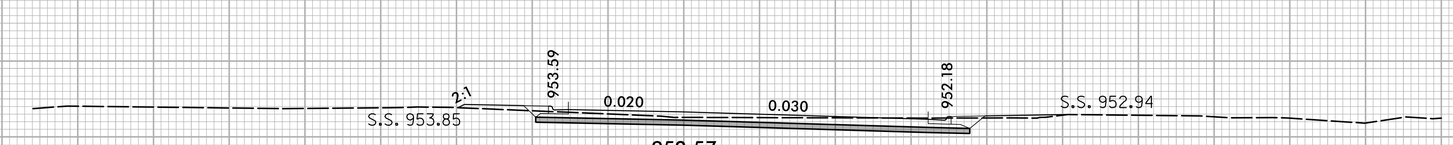
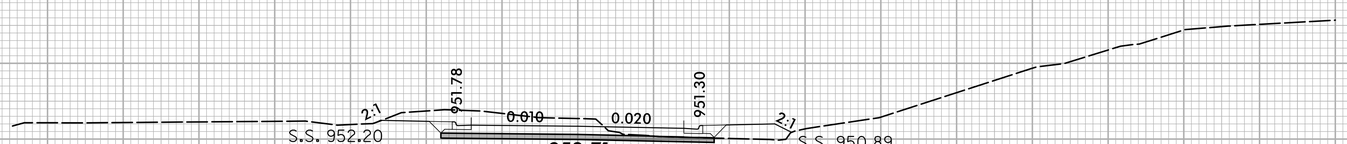
SHALLOW UNDERCUT EXCAVATION

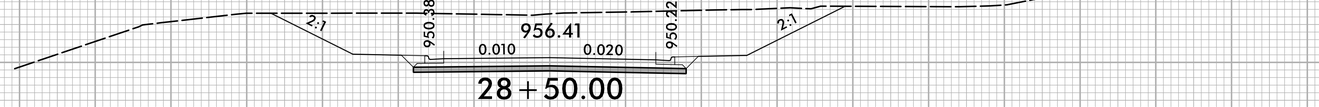
END PROJECT –L– STA. 29+90.18



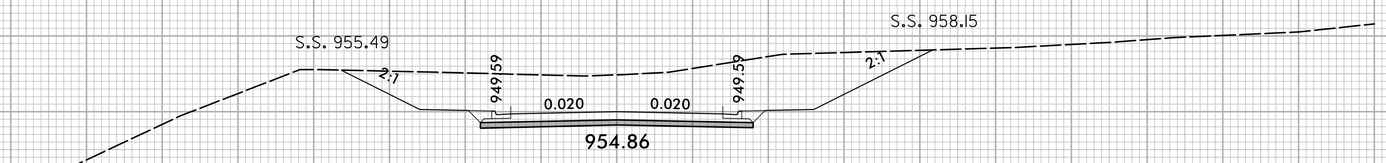
29+50.00



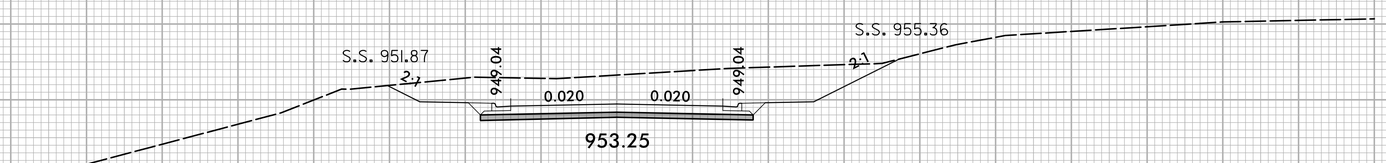
29+00.00



28+50.00



28+00.00



27+50.00

—L—